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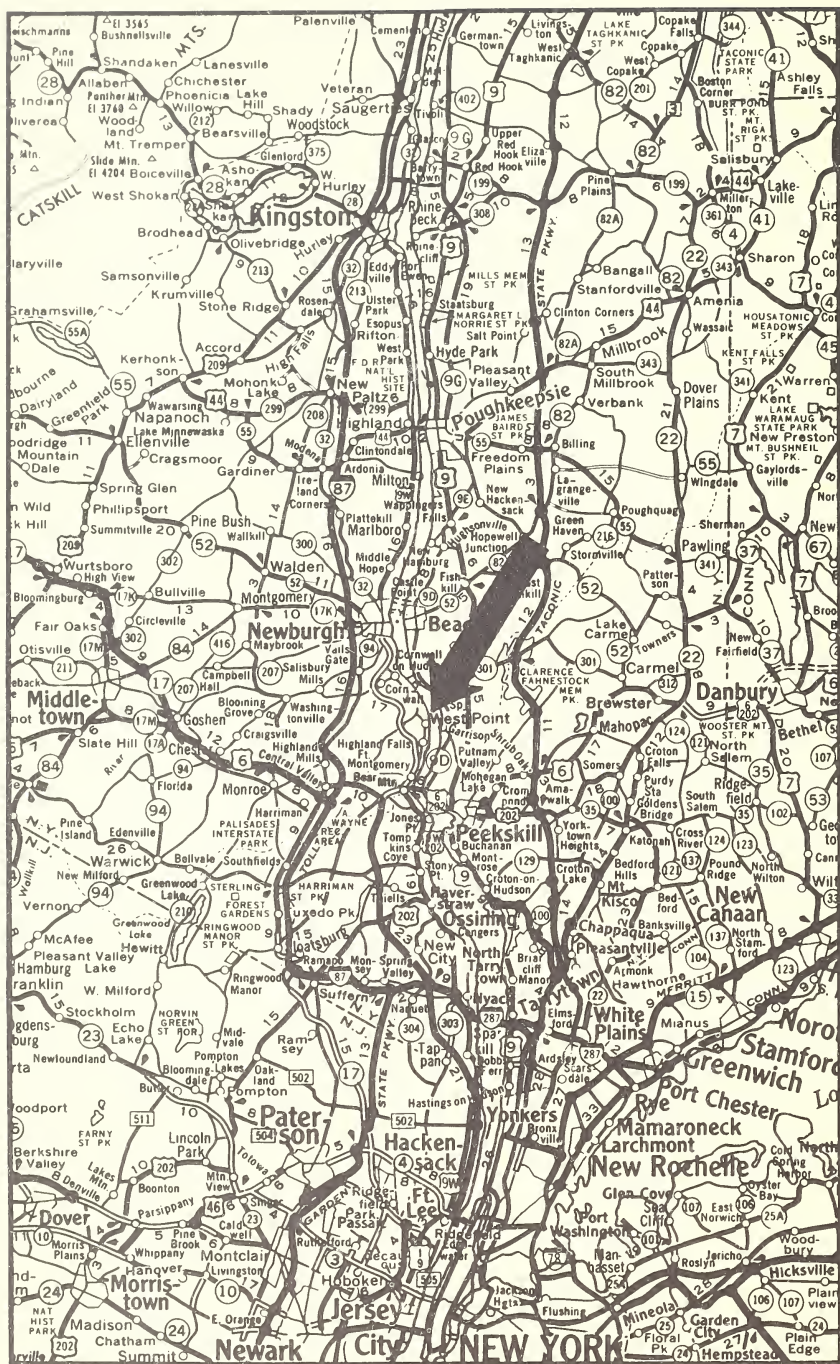
# UNITED STATES MILITARY ACADEMY

WEST POINT • NEW YORK



## 1964-1965 CATALOGUE

ONE HUNDRED SIXTY-THIRD YEAR



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UNITED  
STATES  
MILITARY  
ACADEMY

CATALOGUE

1964



1965

One Hundred and Sixty-third Year





Thayer Statue and Washington Hall



## MISSION OF THE MILITARY ACADEMY

The mission of the United States Military Academy is to instruct and train the Corps of Cadets so that each graduate will have the qualities and attributes essential to his progressive and continued development throughout a lifetime career as an officer of the Regular Army.

Inherent in this mission are the following objectives:

1. Mental—To provide a broad collegiate education in the arts and sciences leading to the Bachelor of Science degree.

2. Moral—To develop in the cadet a high sense of duty and the attributes of character with emphasis on integrity, discipline, and motivation essential to the profession of arms.

3. Physical—To develop in the cadet those physical attributes essential to a lifetime career as an officer of the Regular Army.

4. Military—To provide a broad military education rather than individual proficiency in the technical duties of junior officers. Such proficiency is, of necessity, a gradual development, the responsibility for which devolves upon the graduates themselves and upon the commands and schools to which they are assigned after being commissioned.

# 1964

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# ACADEMIC CALENDAR 1964-65

## 1964

1 July	Wednesday	New Fourth Class enters. (Class of 1968).
4 July	Saturday	Independence Day. Duties suspended.
30 August	Sunday	Beginning of Reorganization Week.
5 September	Saturday	End of Reorganization Week.
7 September	Monday	Labor Day. Duties suspended.
8 September	Tuesday	First Term begins.
11 November	Wednesday	Veterans Day. Classes suspended.
26 November	Thursday	Thanksgiving Day. Classes suspended.
5 December	Saturday	College Board test date.
22 December	Tuesday	Christmas leave begins at 12:00 noon.

## 1965

3 January	Sunday	Christmas leave ends at 5:30 p.m.
9 January	Saturday	College Board test date.
23 January	Saturday	First term ends at 12:00 noon.
25 January	Monday	Second term begins.
2 February	Tuesday	Graduate Record Exam for 1st Class.
22 February	Monday	Washington's Birthday. Classes suspended.
3 March	Wednesday	Entrance examinations at designated military stations.
25 March	Thursday	Spring leave for three upper classes begins at 3:15 p.m.
29 March	Monday	Spring leave for three upper classes ends at 6:00 p.m.
15 May	Saturday	Armed Forces Day. Classes suspended.
29 May	Saturday	Second term ends at 12:00 noon for 1st Class.
30 May	Sunday	Memorial Day. Duties suspended.
3 June	Thursday	Second term ends at 3:15 p.m. for underclasses.
6 June	Sunday	Baccalaureate Sunday.
9 June	Wednesday	Graduation.
15 June	Tuesday	Special entrance examinations begin at West Point.
1 July	Thursday	New Fourth Class enters. (Class of 1969).



# CONTENTS

	<i>Page</i>
Mission of the Military Academy.....	III
Calendar 1964-1965.....	IV
Academic Calendar 1964-1965.....	V
History of West Point.....	1
Administration.....	9
The United States Corps of Cadets.....	10
Aptitude for the Service.....	11
The Honor Code.....	14
Education and Training:	
The Educational Philosophy of the United States Military Academy.....	16
General.....	17
The Academic Board.....	22
Standard and Advanced Study Programs.....	24
Departments of Instruction:	
Department of Earth, Space, and Graphic Sciences.....	27
Department of Electricity.....	29
Department of English.....	34
Department of Foreign Languages.....	36
Department of Law.....	39
Department of Mathematics.....	41
Department of Mechanics.....	46
Department of Military Art and Engineering.....	50
Department of Military Hygiene.....	56
Department of Ordnance.....	56
Department of Physics and Chemistry.....	60
Department of Social Sciences.....	62
Department of Tactics.....	67
Military Psychology and Leadership.....	70
Physical Education.....	72
Academic Computer Center.....	77
Activities and Social Life.....	79
Intercollegiate Athletics.....	83
Religion.....	85
Lecture Program.....	87
Educational Activities.....	93
Awards and Distinctions.....	98
Scholarships.....	105
The Library.....	107
The Museum.....	110
Buildings and Grounds.....	112
Admission:	
General.....	123
Requirements.....	123
Nomination.....	130
Examinations.....	137
Appointment.....	142
Obligations.....	143
Pay, Leave, and Promotions.....	146

	<i>Page</i>
General Information:	
Board of Visitors.....	147
Association of Graduates.....	149
Superintendents.....	153
Appendices:	
Special Medical Examination Considerations.....	157
Medical Examination Facilities.....	163
Physical Aptitude Examination.....	166
March Examination Stations.....	168
Staff and Faculty Directory.....	170
Index.....	190

## ILLUSTRATIONS

Thayer Statue and Washington Hall.....	ii
Alumni Exercises at Thayer Monument.....	viii
The Corps on Parade.....	10
Washington Monument.....	12
View of the Hudson From Trophy Point.....	23
Instruction in Space Science.....	26
Cadets Participate in Operation Crossroads Africa.....	26
Department of Electricity, Nuclear Reactor.....	32
Classroom Recitation in English.....	32
Foreign Language Class.....	42
Classroom Recitation in Mathematics.....	42
Laboratory Instruction in Mechanics.....	58
Ordnance Electronic Analog Computer Laboratory.....	58
Thayer Hall Entrance.....	64
Thayer Hall Auditorium.....	64
Plebe Boxing.....	74
Skiing at West Point.....	74
Academic Computer Center.....	76
Cadet Dance in Cullum Hall.....	80
Delafield Pond.....	80
Army Football and 1964 Army Football Schedule.....	82
Cadet Chapel.....	84
Catholic Chapel.....	86
Student Conference on United States Affairs.....	94
USMA Library.....	108
Aerial View of West Point.....	114-15
New Cadets Reporting.....	122
First Day for a New Cadet.....	132
Bartlett Hall.....	144
Recipients of Thayer Award.....	148
Battle Monument.....	154

## CONTENTS



Alumni Exercises at Thayer Monument



## HISTORY OF WEST POINT

The United States Military Academy was established officially on 16 March 1802 at West Point, a key Hudson River military fortress during the Revolution, and was opened on 4 July 1802.

Two compelling reasons made the formation of an American military academy at that time both logical and necessary: the experience of the Revolutionary War; and the ominous international political situation when Thomas Jefferson became President in 1801.

The experience of the Revolutionary War, during which America had to rely in large part on foreign drillmasters, artillerymen, and trained engineers, made the military and political leaders of the day energetic backers of a military academy. The earliest proposal was in 1776 by Col. Henry Knox who recommended "An Academy established on a liberal plan . . . where the whole theory and practice of fortification and gunnery should be taught." The papers of Gen. Benjamin Lincoln, Gen. Jedediah Huntington, Secretary of War Timothy Pickens, John Adams, Alexander Hamilton, and George Washington mention time and again the need for an academy. In his annual messages to Congress, Washington always included a plea that the Congress provide facilities for the study of military art. In 1797 in his eighth annual message, for example, he said:

The institution of a military academy is also recommended by cogent reasons. However pacific the general policy of a nation may be, it ought never to be without a stock of military knowledge for emergencies. . . . [The art of war] demands much previous study, and . . . [knowledge of that art] . . . in its most improved and perfect state is always of great moment to the security of a nation. . . . For this purpose an academy where a regular course of instruction is given is an . . . expedient which different nations have successfully employed.

The military academies that "different nations" had "successfully employed" and that Washington likely had in mind were England's Royal Military Academy at Woolwich, founded in 1741, and France's Ecole Polytechnique, founded in 1794. The Royal Military College at Sandhurst in England was founded the same year as our own Academy, 1802. And Washington quite obviously realized that

complete independence for America called not only for the severance of political ties from England and the formation of an independent political state, but also for independence in every facet of national life and culture: in law, religion, agriculture, shipbuilding, trading, manufacturing, and military science. How deeply he continued to feel about the need for an Academy appears in a letter written 2 days before his death and addressed to Alexander Hamilton:

The establishment of an Institution of this kind, upon a respectable and extensive basis, has ever been considered by me as an object of primary importance to this country; and while I was in the Chair of Government, I omitted no opportunity of recommending it, in my public speeches and other ways, to the attention of the Legislature.

The second compelling reason for the immediate establishment of an American military academy was the ominous international political situation of 1801-02. The previous two decades had been troublesome ones. The weak and ineffectual Articles of Confederation and Perpetual Union, trouble with the Barbary pirates, Shays' rebellion, boundary disputes, frontier battles, currency quarrels; these had plagued the young nation, and now it was threatened by the danger of involvement in the complexities that were coming as an aftermath of the French Revolution of 1789. Public opinion moved toward more energetic national government and better trained armed forces.

So it was that Congress, by its Act of 16 March 1802, authorized a Corps of Engineers, set its strength at 5 officers and 10 cadets, and provided that it be stationed at West Point in the State of New York and constitute a Military Academy.

The garrison site of West Point, consisting of 1,795 acres purchased from Stephen Moore in 1790, had been occupied by the Army since 1778. Hence barracks and other buildings, while inadequate, were available for housing and instruction, and Maj. Jonathan Williams, grandnephew of Benjamin Franklin and Chief of the Corps of Engineers, who had been appointed as the first Superintendent, was able to open the Academy on 4 July 1802 with 10 cadets present.

The initial purpose of the Academy was to train military technicians for all branches of the military service, to encourage the study of military art nationally and thus raise the level of training of the militia, and to encourage the practical study of every science. This last, it should be noted, at a time that many other American

academic institutions looked at the sciences with suspicion and hostility. How well the Academy succeeded in its purpose for the first 10 years of its existence was summarized by the most authoritative historian of that period of American life, Henry Adams. In his *History of the United States* (9 vols., 1889-91), covering the Jefferson and Madison administrations, Adams offers the tribute that American scientific engineering ". . . owed its efficiency and almost its existence to the military school at West Point established in 1802."

In the year 1812 the growing threat of war with England impelled Congress to pass the act of 29 April 1812 by which the strength of the Corps of Cadets was increased to 250, the academic staff enlarged, and the cadets placed under the discipline of published regulations. A chaplain was authorized who in addition to his religious duties was "to officiate as Professor of Geography, Ethics, and History." The act required also that the cadets be taught "all the duties of a private, a noncommissioned officer, and an officer." This requirement, says Emory Upton in *The Military Policy of the United States* (1904), was the "key to the character for efficiency and discipline which the graduates have since maintained."

The record of the War of 1812 shows that the Academy graduates served their country well. A quarter of the more than 100—all under 30 years of age—who saw action were killed or wounded; and not one of the fortifications constructed under their direction was captured. Henry Adams was appreciative of their technical skill. "During the critical campaign of 1812," he wrote, "the West Point Engineers doubled the capacity of the little American army for resistance."

The experience of the War of 1812, that gave the Nation new self-assurance, affected the Academy's educational aims in the period of peace which followed. No longer was the enemy an immediate threat on our borders; American nationality had been firmly established. National interest called now for canals, roads, railroads, and the exploitation of the soil and its mineral wealth. The accurate mapping of rivers, the deepening of their channels, the constructing of lighthouses and beacon lights: these were needed to make communication easier. And the preliminary work of prospecting and surveying had to be done.

That the Academy graduates of this era were men who through force of character and training could assume leadership in the per-



formance of these tasks was due largely to the genius of Col. Sylvanus Thayer, Superintendent from 1817 to 1833. The "Father of the Military Academy" had one ideal before him: to produce men who would be trained and worthy leaders. He demanded of the cadets excellence of character and excellence of knowledge, the two integrating qualities of such leadership. But he knew that to achieve his ideal he must master and guide the day-to-day routine of the Academy, and so it was that he let no detail of character training or discipline, of curriculum content, of textbooks, of teaching methods, of extracurricular activities, of physical plant escape his attention.

Thayer grasped at once the need of the country for engineers, and therefore made courses in civil engineering the core of the curriculum. Under his direction, instruction in that subject eventually included the properties, preparations, and use of materials for construction; the art of construction generally, including decorative architecture; the manner of laying and constructing roads; the construction of bridges; the principles regulating the removal of obstructions impeding river navigation; the survey, location, and construction of canals and railroads; and the formation of artificial and the improvement of natural harbors.

A list of the Academy's achievements in the field of civil engineering that can be attributed to the farseeing genius of Thayer would include trigonometrical and topographical surveying; methods of triangulation; magnetic declination; and the systems used in locating, surveying, and dividing the public lands of the United States. Francis Wayland, the president of Brown University from 1827 to 1855, said in 1850 in a report to the Corporation of Brown University that West Point graduates did "more to build up the system of internal improvement in the United States than [the graduates of] all other colleges combined."

To provide objective criticism of his work, Thayer had the aid of a Board of Visitors. A regulation for the Government of the Military Academy, approved by Secretary of War William H. Crawford on 1 July 1815, provided for the appointment of such a Board to consist of five "competent gentlemen," with the Superintendent as President, who should attend at each of the annual and semiannual examinations and report thereon to the Secretary. This excellent custom of having a Board of Visitors has lasted to the present day. From the beginning their criticism was pertinent and helpful; nor is this surprising when the long list of those who have been members is scanned, for thereon the names of men like Edward

Everett, George Bancroft, George Ticknor, Horace Mann, and Daniel Coit Gilman appear. Thayer knew the value of the intelligent lay point of view and welcomed the Board's comments on his curricular shift to civil engineering, his innovations in educational method, and his system in general.

His innovations in educational methods insured that the cadets not only learned but retained their subjects. Basically, he demanded that the cadets develop habits of mental discipline and maintain standards of scholarship that have grown in importance the more they have been tested through the years. He emphasized habits of regular study, he laid down the rule that every cadet had to pass every course—any deficiency had to be made up within a specified time or the cadet would be dropped. To carry out these rigorous standards he limited the classroom sections to from 10 to 14 members; he rated these sections in order of merit and directed that cadets be transferred from one to the other as their averages rose or fell.

These methods and standards of Thayer's system are still used at the Academy, and Thayer's insistence on leadership integrated by excellence of character and excellence of knowledge has been the cornerstone of the Academy's training since his day. Emerson, visiting West Point in 1863, spoke of the "air of probity, of veracity, and of loyalty" the cadets had; and when in 1898 the present coat of arms was adopted, the motto thereon of "Duty, Honor, Country" was but a later generation's attempt to put Thayer's ideal into words.

To the casual student it might seem that until about 1860 West Point was filling the almost dual roles of national military academy and of national school of civil engineering. But despite the curricular emphasis on civil engineering and the renown of her graduates in that field, the Academy never forgot her deepest and most abiding obligation to the Nation: to send forth graduates trained in the art and science of war. That the obligation was fulfilled is attested for these early years by the records of the Mexican and Civil Wars. The record of the Mexican War is told best in the words of Gen. Winfield Scott:

I give it as my fixed opinion, that but for our graduated cadets, the war between the United States and Mexico might, and probably would, have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns we conquered a great country and a peace, without the loss of a single battle or skirmish.

The record of the Civil War shows that the Confederacy used graduates whenever and wherever possible; the Union, in the beginning, used "political" generals. Defeat after defeat proved the need for professionally trained officers and, in the last year of the war, all senior commanders of the Union armies were Academy graduates. Grant, Lee, Sheridan, Jackson, to name but a few on both sides, were all from West Point.

After the Civil War, changing conditions necessitated a shift in the Academy's curriculum away from the emphasis on civil engineering. The first Morrill Land-Grant Act of 1862, granting Federal land to each state "for endowment, support, and maintenance of at least one college where . . . military tactics . . . [and] . . . such branches of learning as are related to agriculture and the mechanic arts [shall be taught]," enabled American education to be enormously expanded. New technical and engineering schools, supplementing those that had been founded in the second quarter of the nineteenth century, made it possible for West Point to drop its strong emphasis on engineering subjects. But even had these new schools not come into being, the Academy would have found it impossible to keep on producing both adequately trained Army officers and adequately trained engineers. The tremendous expansion of the body of scientific knowledge during these years—the last half of the nineteenth century—was enforcing specialization in all technical fields. And since the science of war likewise expanded greatly it became obvious that the Army officer would need specialization in his particular branch of service.

The Academy met these changed conditions by severing its direct relationship with the Corps of Engineers; from 1866 on it was no longer mandatory that the Superintendent be a member of that Corps. To take care of officer-specialization demand, several Army post-graduate schools were set up, and West Point gradually came to be looked on as only the initial step in the Army officer's education. As the Academy approached its centennial, the military objective of the curriculum came to be the giving of general instruction in the elements of each military branch.

After its centennial, in 1902, the Academy underwent a thoroughgoing structural renovation and became known as the New West Point. Coincident with this reconstruction, Gen. Albert L. Mills, the Superintendent, had the entire curriculum, military and academic, reassessed. As a result, military instruction was transformed from a series of mechanical drills to practical training in minor tactics



and field work. Complete correlation was developed between instruction and actual field conditions. One of Mills' special hobbies was English; he believed that the Army officer should be able to express himself clearly in speech and writing. To that end, he strengthened greatly the course in English. A gradual liberalization of the curriculum went on until the outbreak of World War I.

World War I tested and proved, as never before, the soundness of the Academy's curriculum and training. Although in order to meet the sudden and great demand for trained officers the course was shortened and a number of classes graduated early, the qualities and abilities of the graduates remained high.

After the close of the war the Academy's further development was placed in the hands of Gen. Douglas MacArthur, who became Superintendent on 12 June 1919. General MacArthur's primary concern was an adaptation of the curriculum in terms of the recent war. It was known, for instance, that the concept of total war, new in military history, required cadets to have a knowledge of national production, transportation, and social problems; that something of the new developments in weapons and tactics had to be incorporated into cadet instruction; and that shortcomings in the officers' physical development, seen clearly in the stress of battle, made a longer and more vigorous physical training program necessary. But at the same time it was realized that the tremendous advances in the art and science of war, made under the pressure of actual conflict, presaged further development of Army postgraduate schools, and hence a growing emphasis upon a more broadly conceived basic curriculum at West Point. The belief was reached that the Academy would serve best by giving the cadets a combination of general and technical education, in this way providing a solid foundation for a professional military career.

The part of the curriculum General MacArthur changed with the greatest vigor was that relating to physical education. He believed firmly that physical fitness was a basic requirement of an officer; and he planned a strenuous program of compulsory gymnastic instruction complemented by an intramural program of 14 sports in which every cadet had to take part. The wisdom of his foresight has been reflected ever since in the excellent physical condition of all cadets at all times.

Soon after General MacArthur's incumbency the policy of a liberal as well as a technical education got renewed emphasis by the introduction of a course in economics and government under the Professor

of English and History. In 1926 the Department of English and History was reorganized into the Department of Economics, Government, and History; and a separate Department of English established. In succeeding years curricular reforms took place in modern languages, natural philosophy, and mathematics.

All phases of training were greatly intensified during the rearmament years, 1939–41; and the part played by its graduates in World War II seemed to justify the teaching and the courses at the Academy. Eisenhower, MacArthur, Bradley, Patton, Spaatz, Arnold, Collins, Clark, McNair, Devers, Wainwright, McNarney, Stilwell, Eichelberger, Vandenberg, Simpson: the list of West Point graduates who led our armies is a long and honored one.

But much was learned from World War II and Korea. A series of studies and reviews by distinguished educators and military leaders led to revised concepts of what professional military education should mean. A comprehensive analysis conducted from 1956 to 1960 of the entire curriculum and training program resulted in increased emphasis on modern technological advances and the increasingly complex aspects of national security and international relations. Related courses have been coordinated to bring their direction and emphasis into common focus. Because of the increased technological character of the weapons and techniques of war, the coverage of chemistry, nuclear physics, electronics, and basic astronautics has been increased. Similarly, because of the more frequent assignment of officers on foreign service, the coverage of geography, history, government, economics, and ideologies of countries other than the Western World has been increased. In order to challenge each cadet and to enable him to proceed as rapidly as his capabilities permit, the number and scope of advanced courses were expanded, and in order to capitalize on the aptitudes and interests of individual cadets, an elective program was introduced.

The academic and military training program is a vital, everchanging one that is continuously examined and adjusted to the changing times, and yet the Academy builds always on the cornerstone of the Thayer system: leadership integrated by excellence of character and excellence of knowledge.

## ADMINISTRATION

The United States Military Academy is under the general direction and supervision of the Department of the Army. The Secretary of the Army has designated the Chief of Staff of the Army as the officer in direct charge of all matters pertaining to West Point.

The immediate government and military command of the Academy and the military post at West Point are vested in the Superintendent. The Dean of the Academic Board coordinates the activities of the academic departments and advises the Superintendent on academic matters. The administration and military training of the Corps of Cadets are under the responsibilities of the Commandant of Cadets, who is also head of the Department of Tactics.

### SUPERINTENDENT:

Maj. Gen. James B. Lampert, USA

### CHIEF OF STAFF:

Col. Thomas C. Chamberlain, GS

### AIDE-DE-CAMP:

Capt. Francis W. Matthews, Inf

### DEAN OF ACADEMIC BOARD:

Brig. Gen. William W. Bessell, Jr., USA

### ASSOCIATE DEAN:

Lt. Col. Dallas L. Knoll, Jr., CE

### COMMANDANT OF CADETS:

Brig. Gen. Michael S. Davison, USA

### DEPUTY COMMANDANT:

Col. Robert M. Tarbox, CE

### INFORMATION OFFICER:

Lt. Col. Robert E. Kren, Arty

### DIRECTOR OF ADMISSIONS AND REGISTRAR:

Lt. Col. Robert S. Day, USA

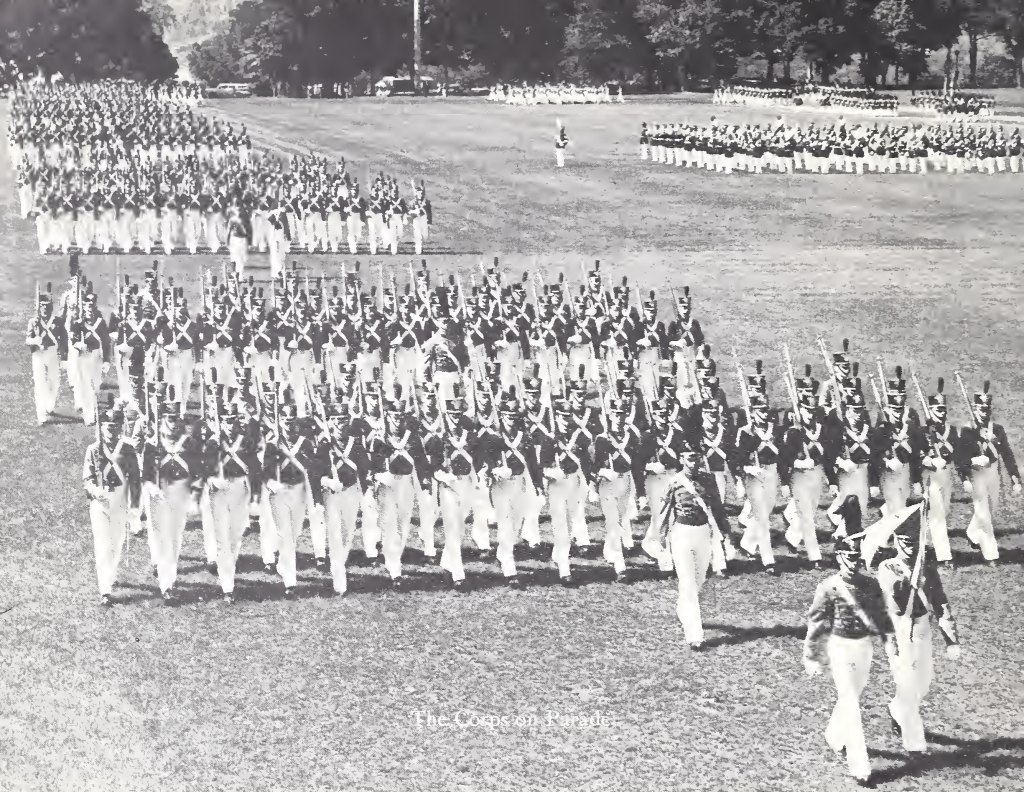
### ADMISSIONS OFFICERS:

Lt. Col. George A. Garman, Jr., Arty

Maj. Francis W. Craig, Inf

Capt. William McK. Hadly, Inf





The Corps on Parade

## THE UNITED STATES CORPS OF CADETS

The student body at West Point is called the United States Corps of Cadets. A member of the Corps is expected to display at all times the attributes of leadership, character, and integrity that are requisite in the fulfillment of the requirements of the military service.

The approximately 2,500 cadets of the Corps, organized into 24 companies of about 100 men each, follow a Brigade organization with two regiments. Each regiment is organized into three battalions with four companies in each battalion.

In command of the Brigade is the Cadet Brigade Commander (Cadet First Captain) who has a staff consisting of a Brigade Executive Officer, a Brigade Adjutant, a Brigade Operations Officer, a Brigade Supply Officer, and a Brigade Activities Officer. The two Cadet Regimental Commanders and the six Battalion Commanders have similar staffs.

A Cadet Company Commander is in charge of each company, with subordinate cadet officers and non-commissioned officers in command of the smaller units.



## APTITUDE FOR THE SERVICE

The Aptitude for the Service System functions in accord with the basic responsibility of the Academy to produce officer leaders for the Armed Forces. The system assists in the maximum development of the leadership capabilities of each cadet and insures that graduates meet the standards required by the Army. The procedures of the system provide for evaluation of the leadership potential of each cadet, counseling and guidance in those areas in which any weakness is detected, and separation of any cadet who proves incapable of achieving the required standard of leadership.

The evaluation of cadet leadership is accomplished primarily through a program of ratings by officers and cadets. Twice a year each cadet rates all cadets of his company who are in his class or lower classes. The ratings are made by arranging the cadets in each class within the company in order of merit based on observed leadership ability.

In addition to the ratings by other cadets, each cadet is similarly rated by his Company Tactical Officer. The rating by the Tactical Officer is an extremely important one since this officer has been selected for his job because of proven leadership ability. It is he who has studied carefully the cadets in the company and has counseled and advised each cadet.

A relative standing in Aptitude for the Service for each cadet is established by mathematically combining the ratings of the Tactical Officer and cadets. The cadet standings are not published, but the cadet and his parents are informed of his general ranking within the class. The objective ratings are supplemented in certain instances by descriptive comments regarding performance of specific duties and overall potential.

The Tactical Officer plays a key role in the counseling and guidance phase of the system. With each cadet he conducts a series of interviews in which he discusses any weakness shown, along with its probable cause, and counsels him in the means of improvement.

If over an extended period of time the cadet appears incapable of overcoming his deficiency and attaining the leadership standards required, his records are carefully studied by a board of senior officers



Washington Monument

of the Department of Tactics. The board interviews the cadet and such other cadets and officers as necessary for a thorough evaluation of the case. The board may recommend that a cadet be declared proficient or deficient. The Commandant reviews the proceedings of the Aptitude Board and refers those cases involving deficiency to the Superintendent for action by the Academic Board wherein they are handled in the same manner as deficiency in an academic subject. A cadet found deficient in Aptitude for the Service by the Academic Board may be placed in a conditioned status until the next rating or he may be separated. All cases involving separation are referred to the Department of the Army for final approval.

Deficiency in Aptitude for the Service does not mean that a young man is unsuited for a successful career in life. It does mean that in the considered opinion of his officer supervisors and his fellow cadets he is not suited for a career as an officer of the Army.



## THE HONOR CODE

The development of character and integrity in the members of the Corps of Cadets is a basic objective of the Academy. The Cadet Honor Code and System are officially recognized as primary means through which this objective is attained.

From the earliest days of recorded history it has been universally recognized that unquestioned integrity is an essential trait of the military leader. Colonel Sylvanus Thayer, the father of the Military Academy, determined that the Academy should produce leaders whose foundation was built on honor, integrated with a strong sense of discipline and excellence of knowledge. Since his day the role of honor has been maintained by the Corps and fostered by the authorities of the Academy. General Douglas MacArthur, shortly after World War I, was instrumental in formalizing the Honor Code and System and making them officially sanctioned means of building character. Today, the Honor Code is a most cherished possession of the Corps of Cadets and of the "Long Gray Line" of graduates.

The Honor Code has never outgrown its original and simple meaning—that a cadet will not lie, cheat, or steal. The Code requires complete integrity in both word and deed of all members of the Corps and permits no deviation from those standards. Not only is the cadet expected to tell the truth on all occasions, but also to avoid quibbling or evasive statements. In the classroom a cadet does his own work. Under no circumstances will he take unfair advantage of his classmates. The maintenance of these high honor standards is the responsibility of each cadet, and each cadet is expected to report himself or any other cadet for violations of the Honor Code. These exacting standards are rigidly enforced, and any intentional violation by a cadet is cause for separation from the Military Academy.

The Honor System is an integral part of the Honor Code and is the method by which the Honor Code is applied in the highly organized life of a cadet. As an example, cadets may account for their absence from their rooms simply by marking their absence cards. This marking is accepted as the cadet's word that his absence is authorized, and that he will take no advantage of this privilege. Cadets are also often required to indicate by signature that they have complied with official instructions. These devices are part of



the Honor System that requires the cadet to make decisions based on his sense of honor many times a day during his 4 years at the Academy. In this respect the Honor System serves as a training vehicle to instill within each cadet the desire to abide by the precepts of the Honor Code.

For its success the Honor Code depends upon the Corps. The Cadet Honor Committee, elected by the Corps, monitors the operation of the Honor Code and System. It explains to the Corps the principles upon which the Code is based, and guards against practices inconsistent with that Code. Thus, this Committee insures that the high standards of the Code are maintained and transmitted, undiluted, from class to class. Its procedures follow a set pattern, and its members have responsible authority. The Committee has no punitive powers, its functions being entirely investigative and advisory. If the Committee reports a cadet to the Commandant for an honor violation, the Commandant takes appropriate official action to insure that the standards of the Code are upheld while protecting the rights of the cadet in accordance with the provisions of the Uniform Code of Military Justice.

One of the Honor Committee's most important tasks is to supervise the indoctrination of the New Cadets in the principles of the Code. This indoctrination is both intensive and continuous and includes informal discussions, as well as scheduled lectures. Though New Cadets do not take an active part in the Honor System until they have received adequate instruction, they are expected to adhere to the same standards as other cadets under the Honor Code. It is soon apparent to New Cadets that all members of the Corps share an inherent pride in upholding the exalted position of the Code. This observation, coupled with the indoctrination program, raises the varying standards of honor of an entering class to the uniformly high plane which the Corps has established, and expects from its members.

The devotion of the Corps to the Honor Code is especially strong. In the opinion of both cadets and graduates, it is a particularly vital part of their education, training, and character-building at the Academy and makes a lasting impression on them.

## EDUCATION AND TRAINING

### THE EDUCATIONAL PHILOSOPHY OF THE UNITED STATES MILITARY ACADEMY

The United States Military Academy prepares selected young men for service to their country as professional officers of the United States Army. Since it is the only institution of higher learning with this specific mission, its philosophy of education is unique. The Military Academy must produce enlightened military leaders of strong moral fiber whose minds are creative, critical, and resourceful. The academic curriculum and military training encourage logical analysis, clear and concise expression of considered views, and independent thought and action along with a readiness, developed within the framework of military discipline, to carry out orders without reservation once a decision has been reached.

The total curriculum is designed to develop those qualities of character, intellect, and physical competence needed by the officer who is prepared to lead the smallest combat unit or to advise the highest governmental council. The program includes the sciences, the humanities, and military and physical training. It forms a basis both for graduate education and for further professional development.

In the academic curriculum, standard courses provide the essential core of knowledge of mathematics, science, engineering, the social sciences, and the humanities and an understanding of the application of this knowledge to the solution of problems. Advanced and elective courses afford the opportunity to develop intellectual capacities and to concentrate in areas of particular interest.

Military training provides the requisite knowledge of professional fundamentals and doctrine and of the basic military skills. Service in positions of responsibility in the Corps of Cadets and participation in intensive summer training provide the opportunity to apply and test principles and to learn techniques by practice and observation.

Fitness for military leadership requires physical strength, agility, stamina, and a competitive spirit. These are acquired from a comprehensive course in physical education and from participation in intramural and intercollegiate sports.

The increasing complexity of the world scene requires constant

adaptation by the military profession and by the institutions which prepare its leaders. But while adapting itself to the changing world, the Academy must continue to emphasize the devotion to Duty, Honor, and Country which has traditionally been the hallmark of its graduates.

## GENERAL

### *Bachelor of Science Program*

The Military Academy is accredited by the Middle States Association of Colleges and Secondary Schools. Its academic program provides the student with a broad foundation in the humanities, the social sciences, the natural and engineering sciences, and the military sciences. Graduates of the Academy are accepted for advanced study by the leading graduate schools of the country.

### *Standard Academic Program*

The Standard Academic Program consists of the prescribed courses which fulfill the minimum requirements for graduation. Each cadet must satisfactorily complete each of these courses, unless, on the basis of previously completed college level work or demonstrated ability, he is qualified for enrollment in the Advanced Studies Program.

### *Advanced Studies Program*

The Advanced Studies Program is the academic program or, more precisely, programs, pursued by cadets who validate standard courses or who are capable of taking courses of a more advanced nature. It is designed to recognize and to give credit for previous academic achievement and to permit the cadet to penetrate more deeply into one subject area or to pursue a broader field of study than is required by the Standard Academic Program.

### *Validation*

A cadet who has satisfactorily completed appropriate college-level work prior to entering the Academy, or who has acquired sufficient knowledge of the subject matter through self-study, may validate standard courses. Normally he must successfully complete validating examinations administered at the Academy by the departments concerned. In addition, candidates are encouraged to submit for validation consideration College Entrance Examination Board Advanced Placement test results. For each course validated, a cadet must take the next sequential standard course or an elective course of approximately the same number of semester credit hours. A cadet

who has appreciable prior knowledge of the subject matter, although not sufficient for validation, or who demonstrates unusual ability, may be enrolled in an advanced course. Advanced courses normally cover the subject matter of the corresponding standard course but include subject matter which is significantly broader or deeper in scope.

### *Elective Courses*

Elective courses are those courses a cadet selects at designated stages in the curriculum. At present, each cadet taking the Standard Academic Program will select two electives during his final year at the Academy. Cadets who validate standard courses will, at some time between validation and graduation, take additional elective courses equivalent in terms of credit hours to the validated courses. With approval, cadets of the upper classes may take elective courses in addition to their normal course loads. Cadets are encouraged to make their selections in the interest of deepening their area of concentration or in the interest of broadening their backgrounds. Elective courses offered are:

Advanced Calculus I and II	Introduction to Theoretical Physics I and II
Advanced Structural Analysis	Latin American Studies
American Literature of the 19th Century	Linear Algebra and Linear Programming
Automotive Engineering	Management Engineering
Comparative Economic Systems	Middle Eastern Studies
Contemporary Literature	Military History of Insurgency and Counterinsurgency
Design of Concrete Structures	National Security Problems
Differential Equations (Intermediate)	Nuclear Physics
Digital Computers	Nuclear Reactor Theory
Electronic Circuits	Numerical Analysis with Electronic Digital Computation
English Literature from the Beginning to 1660	Physical Chemistry I and II
English Literature from 1660 to the Present	Political Philosophy
Engineering Materials	Portuguese I and II
Evolution of Modern Warfare	Problems of the Developing Nations
French I, II, and Seminars	Quantum Mechanics
Gas Dynamics	Russian I and II
German I, II, and Seminars	Shakespeare
Graphical Computations	Sociology
History of Russia	Soil Mechanics
History of U.S. Foreign Relations	Solid State Electronics
Human Relations: Managerial Psychology	Space Mechanics
Individual Engineering Projects	Spanish I, II, and Seminars
Individual Ordnance Project	The Novel
International Law	Twentieth Century Warfare



### *Honors Courses*

For a select few cadets Honors Courses are offered in the First Class year.

### *Listing of Courses*

Standard, advanced, and elective courses are shown by departments. Courses for the Fourth Class are numbered in the 100's; courses for the Third Class in the 200's; courses for the Second Class in the 300's; and courses for the First Class in the 400's. Advanced and elective courses are indicated by the second digit, 5 and 8, respectively. For standard and advanced courses the third digit indicates the term in which the course is offered; odd digit for first term, even digit for second term. Elective courses may be offered in either or both terms as indicated in the course description. Credit hours are computed generally on the basis of actual number of hours of classroom instruction per week.

### *Methods of Instruction*

Cadets attend classes in small sections of from 12 to 15 students so that emphasis may be placed on daily student participation. Cadets are normally assigned to sections on the basis of their demonstrated ability in each subject. The resulting homogeneous grouping enables the instructor to pace his teaching to the capability of the student. Thus the cadet is intellectually challenged and the maximum of learning can take place at all levels. Cadets are resectioned periodically. Weekly posting of grades contributes much to the development of a competitive spirit in academics among cadets. Periodic reports of each cadet's academic progress are provided to parents.

## STANDARD ACADEMIC SCHEDULE 1964-1965

### FOURTH CLASS (FRESHMAN) YEAR

<i>Subject</i>	<i>Frequency of Attendance</i>	<i>Number of Attendances</i>	<i>Length of Period in Minutes</i>	<i>Contact Hours</i>	<i>Semester Credit Hours</i>
Mathematics.....	Every day Mon-Sat.....	212	75	265	15
Engineering Fundamentals.	Every other day Mon-Fri...	90	120	180	6
Environment.....	Every other day Mon-Fri...	90	60	90	6
English.....	Every other day Mon-Fri...	90	60	90	5
Foreign Languages.....	Every other day Mon-Fri...	90	60	90	5
Physical Education.....	As scheduled.....	145	45-90	140	3
Tactics.....	Twice each week.....	65	60	65	2.5

### THIRD CLASS (SOPHOMORE) YEAR

Mathematics.....	Every other day Mon-Sat...	106	80	141	8
Physics.....	Every other day Mon-Sat...	106	80	141	8
Chemistry.....	Every other day Mon-Sat...	106	80	141	8
Foreign Languages.....	Every other day Mon-Sat...	106	80	141	8
History.....	Every other day Mon-Fri...	90	60	90	5
English.....	Every other day Mon-Fri...	<sup>1</sup> 45	60	45	2.5
Psychology.....	Every other day Mon-Fri...	<sup>2</sup> 45	60	45	2.5
Tactics.....	Twice each week.....	45	60	45	1.5
Physical Education.....	As scheduled.....	68	60-90	89	1.5

### SECOND CLASS (JUNIOR) YEAR

Mechanics of Fluids.....	Every other day Mon-Sat...	106	80	141	8
Mechanics of Solids.....	Every other day Mon-Sat...	106	80	141	8
Electrical Science.....	Every day Mon-Sat.....	212	80	283	16
Economics.....	Every other day Mon-Fri...	90	60	90	5
Law.....	Every other day Mon-Fri...	90	60	90	5
Tactics.....	Twice each week.....	66	60	66	2.5
Physical Education.....	As scheduled.....	47	60-90	68	1.5

<sup>1</sup> First Term.

<sup>2</sup> Second Term.

## FIRST CLASS (SENIOR) YEAR

<i>Subject</i>	<i>Frequency of Attendance</i>	<i>Number of Attendances</i>	<i>Length of Period in Minutes</i>	<i>Contact Hours</i>	<i>Semester Credit Hours</i>
Civil Engineering.....	Every other day Mon-Sat....	106	80	141	8
History of Military Art..	Every other day Mon-Sat....	106	80	141	8
History, Government and International Relations.	Every other day Mon-Sat....	106	80	141	8
Ordnance Engineering---	Every other day Mon-Sat....	106	80	141	8
Elective.....	Every other day Mon-Fri....	90	60	90	5
English.....	Every other day Mon-Fri....	<sup>2</sup> 45	60	45	2.5
Leadership.....	Every other day Mon-Fri....	<sup>1</sup> 45	60	45	2.5
Tactics.....	Twice each week.....	66	60	66	1.5
Physical Education.....	As scheduled.....	47	60-90	68	1

<sup>1</sup> First Term.

<sup>2</sup> Second Term.

## TYPICAL DAILY SCHEDULE

### MORNING:

5:50	First call for reveille
6:30- 7:10	Breakfast hour
7:15- 7:45	Study time
7:45- 9:05	Class
9:05-10:30	Study time
10:30-11:50	Class
12:10- 1:00	Dinner hour

### AFTERNOON:

1:05- 2:05	Class
2:05- 2:15	Unscheduled time
2:15- 3:15	Class
3:15- 3:35	Unscheduled time
3:35- 4:50	Intramural and intercollegiate athletics
4:50- 6:30	Study time, parades, intercollegiate athletics, and extracurricular activity meetings
6:30- 7:15	Supper time
7:20- 9:35	Study time
10:00	Taps. Late lights authorized for study purposes.

The schedule shown above is the normal daily schedule for a cadet during the academic year, September through May. During the summer months of June through August the cadet takes a leave of approximately one month and devotes the remainder of the time to instruction in Tactics.

## THE ACADEMIC BOARD

The Academic Board establishes standards and procedures for admission, readmission, advanced placement, validation, academic proficiency, advancement from class to class, graduation, and the granting of diplomas and commissions. The Board recommends separation of cadets for deficiency in academic studies, in conduct, in physical education, and in aptitude for the service. The Board approves courses of instruction, methods of instruction, schedules of instruction, and changes in institutional facilities.

### SUPERINTENDENT, AND PRESIDENT OF THE BOARD:

Maj. Gen. James B. Lampert, USA; B.S., M.S.

### DEAN OF THE BOARD:

Brig. Gen. William W. Bessell, Jr., USA; B.S., C.E., D. Eng. Hon.

### COMMANDANT OF CADETS, AND HEAD OF THE DEPARTMENT OF TACTICS:

Brig. Gen. Michael S. Davison, USA; B.S., M.P.A.

### PROFESSOR AND HEAD OF THE DEPARTMENT OF

#### EARTH, SPACE, AND GRAPHIC SCIENCES:

Col. Charles R. Broshous, USA; B.S., M.S.

#### ELECTRICITY:

Col. Elliott C. Cutler, Jr., USA; B.S., M.S., Ph. D.

#### ENGLISH:

Col. Russell K. Alspach, USA; B.A., M.A., Ph. D.

#### FOREIGN LANGUAGES:

Col. Walter J. Renfroe, Jr., USA; B.S., M.A., Ph. D.

#### LAW:

Col. Frederick C. Lough, USA; B.S., LL.B.

#### MATHEMATICS:

Col. Charles P. Nicholas, USA; B.S.

#### MECHANICS:

Col. Elvin R. Heiberg, USA; B.S., C.E.

#### MILITARY ART AND ENGINEERING:

Col. Charles H. Schilling, USA; B.S., M.S., Ph. D.

#### MILITARY HYGIENE:

Col. Charles H. Gingles, MC; A.B., B.S., M.D.

#### ORDNANCE:

Col. John D. Billingsley, USA; B.S., B.S. in M.E., M.B.A.

#### PHYSICS AND CHEMISTRY:

Col. John R. Jannarone, USA; B.S., M.S., C.E.

#### SOCIAL SCIENCES:

Col. George A. Lincoln, USA; B.S., B.A., M.A. (Oxon).

### DIRECTOR OF ADMISSIONS AND REGISTRAR, SECRETARY TO THE BOARD:

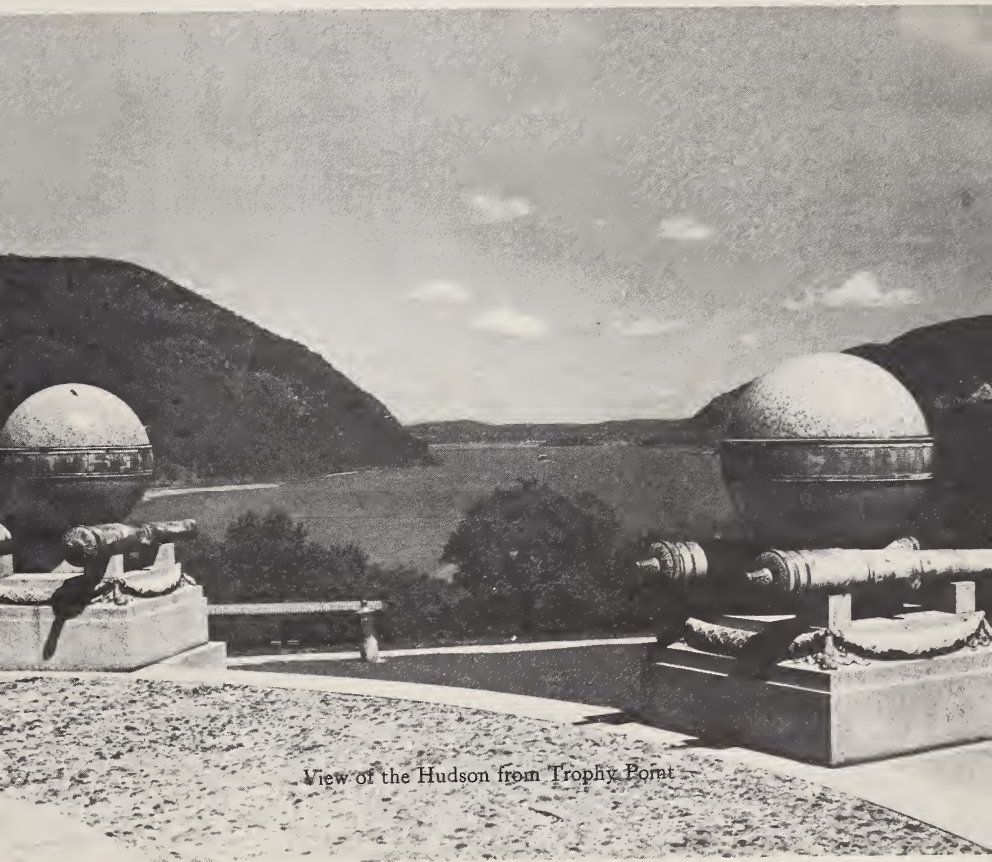
Lt. Col. Robert S. Day, USA; B.S., M.S.



## CONSULTANTS TO THE ACADEMIC BOARD:

James P. Baxter III, Ph. D., Litt. D., LL.D., President Emeritus,  
Williams College.

Carl Richard Soderberg, Tekn. D., D. Eng., Institute Professor Emeritus;  
Professor of Mechanical Engineering, Emeritus; Dean of Engineering,  
Emeritus, Massachusetts Institute of Technology.



View of the Hudson from Trophy Point

## STANDARD AND ADVANCED STUDY PROGRAMS

	<i>Courses in the Standard Academic Program</i>	<i>Courses in the Advanced Academic Program</i>
4th Class (Freshman)	Engineering Fundamentals.....	Advanced Engineering Fundamentals
	English Composition.....	Evolution of American Ideals
	Environment	
	Foreign Languages.....	Advanced French, German, or Spanish
	Mathematics.....	Advanced Mathematics
3d Class (Sophomore)	Chemistry.....	Inorganic Chemistry
		Organic Chemistry
	Comparative Literature	
	Foreign Languages.....	Advanced French, German, or Spanish
	History of Europe and America: 1500-1870	Middle Eastern Studies
	History of Europe and America since 1970	History of Russia
		Latin American Studies
2d Class (Junior)	Mathematics.....	History of U.S. Foreign Relations
		Advanced Mathematics
	Physics.....	Advanced Physics
	Psychology	
	Atomic and Nuclear Physics	
	Economics.....	Comparative Economic Systems
	Electrical Science.....	Advanced Circuits
		Electromagnetic Fields
		Energy Conversion
	Law	
	Mechanics of Fluids.....	Advanced Fluid Mechanics
	Mechanics of Solids.....	Advanced Engineering Mechanics I and II
	Thermodynamics.....	Accelerated Thermodynamics
		Classical Thermodynamics
	U.S. Government.....	Political Philosophy

	<i>Courses in the Standard Academic Program</i>	<i>Courses in the Advanced Academic Program</i>
1st Class (Senior)	Civil Engineering-----	Honors Course in Civil Engineering
		Introduction to Nuclear Engineering
	Contemporary Foreign Governments	
	Electives (2)-----	Additional Electives
	History of Military Art	
	History of Modern Asia	
	International Relations-----	National Security Problems
		Problems of Developing Nations
	Literature and Advanced Exposition	
	Military Leadership	
	Ordnance Engineering-----	Honors Course in Ordnance Engineering



Instruction in Space Science



Cadets Participate in Operation Crossroads Africa



## DEPARTMENTS OF INSTRUCTION

### THE ACADEMIC DEPARTMENTS

#### MISSION

- To provide a broad collegiate education leading to the Bachelor of Science degree.
- To build an academic foundation for future graduate study.
- To stimulate and challenge intellectual curiosity and individual talents.
- To develop powers of analysis, reasoning, and expression.
- To contribute to the building of character.

#### OFFICE OF THE DEAN

*Dean:* Brig. Gen. William W. Bessell, Jr.

*Associate Dean:* Lt. Col. D. L. Knoll, Jr.

*Assistants to the Dean:*

*Operations:* Maj. J. W. Mastin; *Assistants:* Maj. J. S. Sibley

Capt. F. J. McConville

*Research and Analysis:* Maj. C. M. Adams

*Computer Science:* Maj. W. F. Luebbert

*Administration:* Mrs. J. M. Micksin

#### DEPARTMENT OF EARTH, SPACE, AND GRAPHIC SCIENCES

*Professors:* COL. C. R. BROSHOUS (Head of Department), COL. W. W. WATKIN, JR.

*Associate Professors:* LT. COLS. R. H. HAMMOND, W. C. SMITH, W. B. ROGERS.

*Assistant Professors:* LT. COL. R. E. CLARK; MAJS. A. L. ERICKSON, R. J. MILLER;

CAPTS. J. L. BALLANTYNE III, A. C. BIGGERSTAFF, R. B. CHAPMAN, W. M. JEWELL,

JR., I. G. KINNIE, JR., J. G. MCCORMACK, R. V. PERKINS, F. B. PHILLIPS, W. B.

STREETT.

*Instructors:* MAJS. E. J. O'BRIEN, G. A. MCCLELLAN, JR.; CAPTS. J. L. ABELL, D. A.

ANDREWS, R. W. BADGER, P. D. BOORAS, E. S. DIEZ, J. E. DRUMMOND, H. J. HATCH,

R. H. JULIAN, C. M. MINICH, E. M. MOSES, E. G. STAUCH, J. C. SHIREY, D. F.

SVENDSEN, M. G. SWINDLER, N. E. VINSON.

#### Standard Courses

##### EF 101-102. ENGINEERING FUNDAMENTALS

*Earth Measurements.* Fundamental operations and equipment for measuring horizontal and vertical angles and horizontal and vertical distances. Analysis of sources of error inherent in all measurements and consideration of the methods available for the adjustment of these errors.

*Engineering Graphics.* Modern graphical techniques, introduction to computers, applied geometry and pictorial representation (with emphasis on sketching). Orthographic projection and engineering conventions to include shape and size description. The spatial relations of points, lines, and planes. Graphical calculations, vector geometry, nomography and graphical calculus.

6 Credit Hours.

## EV 101-102. ENVIRONMENT

*Physical Geography.* Descriptive study of a number of earth sciences which gives a general insight into the nature of man's environment and provides a sound physical basis for later work in world geography. Included are introductions to geomorphology, geology, hydrology, meteorology, climatology, pedology, and physical oceanography. Map studies are emphasized throughout.

*World Geography.* Study of the location and density of man and effects of differences of population density, habitat, way of living, and political organization. In addition to the general coverage, three regions of the world are studied in greater detail in order to determine their relative national power.

*Astronomy-Astronautics.* Methods of orientation and position referencing; earth motions and environment; historical concepts of astronomy; general methods of astronomical investigation; stellar organization and motions; history of space flight; current astronautics programs and their implications with predictions for the future.

6 Credit Hours.

## Advanced Course

### EF 151-152. ADVANCED ENGINEERING FUNDAMENTALS

Prerequisite: A grade of C or better for a college engineering drawing course of 3 or more credit hours. Offered in lieu of Engineering Fundamentals 101-102.

The first one-third of this course consists of *Earth Measurements* of EF 101-102. This is followed by *Advanced Engineering Graphics* (advanced descriptive geometry, introduction to computers, vector geometry, graphical arithmetic and algebra, empirical equations, nomography, and graphical calculus).

6 Credit Hours.

## Elective Course

### EF 481. GRAPHICAL COMPUTATIONS

Prerequisite: EF 101-102

A treatment of modern methods for the solution of problems in the engineering science areas. The construction and use of various types of nomographs to include the construction of special purpose slide-rules. The determination of equations to represent empirical or test data to include equations of three or more constants. A discussion of harmonic motions, phase angle, harmonics to include the Fourier Series. Vector geometry to include the solution of continuous beams and portal frames. Graphical calculus to include centroids, moment of inertia, radius of gyration, and differential equations.

*2.5 Credit Hours.*

## DEPARTMENT OF ELECTRICITY

*Professors:* COL. E. C. CUTLER, JR. (Head of Department), LT. COL. E. A. SAUNDERS.

*Associate Professors:* LT. COLS. W. T. LINCOLN, W. W. CHANDLER.

*Assistant Professors:* MAJS. R. L. ALEXANDER, D. A. RAMSAY, CAPTS. D. F. NEWNHAM, G. L. BREEDING, E. M. MAYSON, D. P. WHALEN, J. E. RUDZKI.

*Instructors:* MAJS. H. C. FITZ, E. E. EMERSON, W. F. REILLY, E. D. FRANKHOUSER, L. S. ZIMMER, CAPTS. R. L. LAFREZ, J. F. PASSAFIUME, F. L. DAY, R. T. GOODWYN III, C. H. COOPER, M. I. KOVEL, T. G. ADCOCK, R. G. CALDWELL, D. L. SMITH, A. B. SALISBURY, R. W. GELL, B. C. GIALLOURAKIS.

## Standard Courses

### EL 301. ELECTRIC CIRCUITS

Charge, current, and voltage; resistance, capacitance, and inductance; Ohm's and Kirchhoff's Laws; power and energy; phasor representation; natural and steady-state responses; reactance and impedance; step and impulse responses; resonance, bandwidth, and Q; network analysis; four-terminal networks; principle of superposition; Thevenin and Norton Theorems; maximum power transfer; poly-phase networks, with emphasis on balanced loads; nonlinear resistive networks; graphical, algebraic, and iterative methods of solution.

*Laboratory.* Experimental verification of the fundamental laws of electric circuits. Familiarization with methods of measurement to include the use of bridges.

*4 Credit Hours.*

## EL 302. POWER CIRCUITS AND MACHINERY

Magnetic circuits; transformers; fundamentals of dynamos; dc generators and motors; alternators; synchronous motors; induction motors; introduction to feedback control systems and components.

*Laboratory.* Measurement of transformer parameters. Practical exercises on the connection, starting, and operation of dc and ac motors and generators, and experimental determination of their load characteristics.

*3 Credit Hours.*

## EL 304. ELECTRONICS AND COMMUNICATIONS

Concepts of electronic systems; signal representation; electronic circuit representation; resistive two-ports, attenuators, and summers; analysis of tank-circuits, piezoelectric crystals, and Butterworth filters; simple telephone systems; diode electronics and rectifiers; triode electronics, parameters, and graphical analysis; equivalent circuits of triodes and pentodes; vacuum tube amplifiers, methods of coupling, gain, and frequency response; transistors; transistor amplifier circuits; inductive coupling of tuned circuits; radio amplifiers; feedback amplifiers; oscillators; Radio waves and antennas; modulation and detection; receivers and transmitters; frequency bands; FM and SSB; simple wave-shaping circuits; Radar. Cadets taking the advanced course in electricity will take this course on an accelerated schedule.

*Laboratory.* Measurement of vacuum tube and semiconductor device characteristics; construction and operation of amplifiers, filters, oscillators, tuned circuits, mixers, detectors, transistor circuits, wave-shaping circuits, AM transmitters and Superheterodyne receivers.

*5 Credit Hours* (4 credit hours for the accelerated course).

## EL 305. ATOMIC AND NUCLEAR PHYSICS

Historical development of modern concepts; quantum structure of light and electricity; photo-electric effect and photocells; Bohr Theory of the atom, quantum numbers, Pauli's exclusion principle; solid-state electronics, X-rays, nuclear structure; natural and artificial radioactivity; nuclear fission and fusion reactions; chain reactions in reactors and weapons; radiation hazards and detection.

*Laboratory.* Familiarization with radiation detection and counting devices. Measurement of radioactive decay and absorption.

*4 Credit Hours.*



## Advanced Courses

### EL 351. ADVANCED CIRCUITS

Prerequisite: Completion of Physics 201-202, with class standing in upper part of class.

Augmented course replacing ELECTRICITY 301 for cadets whose performance indicates ability to undertake more advanced material, and who desire to pursue it. Covers material in ELECTRICITY 301 with more detailed and mathematical approach. In addition the following topics are presented: complex frequency variable; theory of two-terminal-pair networks; Fourier series and integral; Laplace transform; Introduction to Analog and Digital computers.

*Laboratory.* Experimental verification of the fundamental laws of electric circuits. Familiarization with methods of measurement to include the use of bridges. Measurement of transformer parameters. Analog computer operation.

*4 Credit Hours.*

### EL 352. ENERGY CONVERSION

Prerequisite: Completion of EL 351.

Augmented course replacing ELECTRICITY 302 for cadets in the Advanced Program. Basic electromechanical energy conversion equations are used to develop a general machine which may be made, by the application of proper constraints, to represent ac synchronous machines, ac induction motors, and dc machines. Course culminates in an introduction of servomechanisms.

*Laboratory.* Measurement of parameters and analysis of performance characteristics of a three-phase synchronous machine, a three-phase induction motor, and a dc machine.

*2 Credit Hours.*

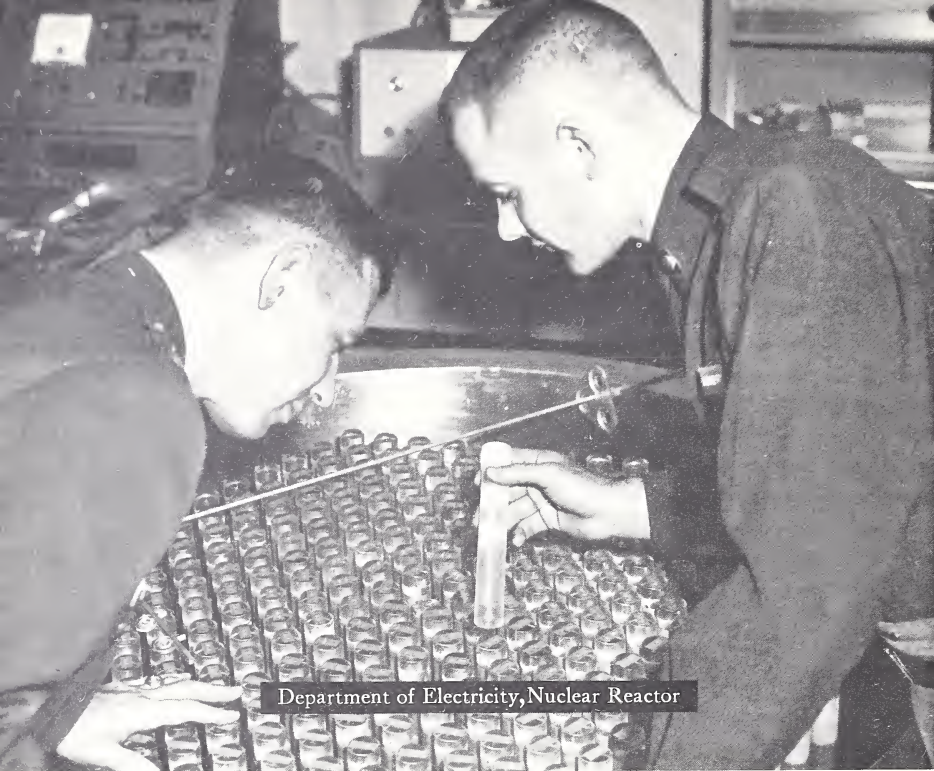
### EL 356. ELECTROMAGNETIC FIELDS

Prerequisite: Completion of EL 351 or EL 301 with class standing in upper part of class.

Course is presented to cadets in the Advanced Program. Material covered includes electrostatic fields, magnetic fields, Maxwell's Hypothesis, fundamentals of electromagnetic waves, reflection, radiation, antennas, waveguides, waves in the ionosphere, and radar.

*Laboratory.* Observation and measurement of radiated microwaves and microwaves in waveguides. Familiarization with basic antenna patterns.

*2 Credit Hours.*



Department of Electricity, Nuclear Reactor



Classroom Recitation in English

## Elective Courses

### EL 481. ADVANCED ELECTRONICS (*Either term*)

Prerequisite: EL 304.

Mesh and nodal analysis; four-terminal networks, active networks; Laplace transform; amplifiers, transient response of amplifiers, band pass and negative feedback amplifiers; oscillators; modulation; detection; wave shaping and multivibrators.

*Laboratory.* Mission-type laboratory exercises involving the construction of vacuum tube circuits and investigation of their characteristics with emphasis placed upon transient response and feedback applications.

*2.5 Credit Hours.*

### EL 483. DIGITAL COMPUTERS (*Either term*)

Prerequisite: EL 304 or standing in upper half of class in 3d or 4th class mathematics and completion or validation of PH 202.

Capabilities and limitations of digital computers; organization and operation; electrical construction; system design, planning, and applications.

*Laboratory.* Investigation of the various electronic circuits utilized in a digital computer and assembly of a portion of a specimen computer. Practical exercises on an actual digital computer involving computer operating techniques and various programming methods.

*2.5 Credit Hours.*

### EL 486. SOLID STATE ELECTRONICS (*Second term*)

Prerequisite: EL 305.

Band structure of semiconductors; density of states; Fermi level mobility; lifetime, recombination, and trapping; diffusion and drift; space charge; high-field effects; optical behavior; surface properties and thin films; single junction devices, including rectifiers, avalanche diodes, field-effect transistors, tunnel diodes, and photodiodes; transistors and multiple-junction devices; fabrication techniques; thin-film networks; integrated solid-circuits.

*Laboratory.* Measurement of mobility, lifetime, and carrier diffusion length; of junction characteristics; of optical and magnetic effects; and of device characteristics.

*2.5 Credit Hours.*

## EL 488. NUCLEAR PHYSICS (*Second term*)

Prerequisite: EL 305.

Review of atomic physics; wave equation of quantum mechanics; momentum and energy operators; barrier and Dirac box problems; wave equation solution in spherical coordinates; quantum numbers; expectation values and normalization; nuclear, coulomb, surface, pairing, and asymmetrical forces; the empirical mass formula; mirror nucleus problem; nuclear sizes; nuclear spins; j-j and l-s spin couplings; parity; shell, liquid drop, and optical nuclear models.

*2.5 Credit Hours.*

## EL 493. NUCLEAR REACTOR THEORY (*First term*)

Prerequisite: EL 305.

Review of nuclear physics pertaining to reactor theory; nuclear forces and binding energy; nuclear reactions; fission; chain reaction; neutron moderation, multiplication, and diffusion; critical equation; time dependency and temperature effects; health physics and radiation detection.

*Laboratory.* Practical exercises in the detection of nuclear radiation. Use of a subcritical reactor to measure criticality parameters and to provide a source of thermal neutrons.

*2.5 Credit Hours.*

## DEPARTMENT OF ENGLISH

*Professors:* COL. R. K. ALSPACH (Head of Department), COL. E. V. SUTHERLAND.

*Associate Professors:* LT. COL. W. C. BURTON; MAJS. L. T. DOYLE, G. W. TRACY (Executive Officer).

*Assistant Professors:* MAJS. J. L. FANT III, R. T. FALLON, P. R. HILTY, JR., C. B. LIND, S. M. SMITH, JR., G. C. WILHIDE, JR., CAPT. L. J. MATTHEWS.

*Instructors:* MAJS. J. F. BART, B. BUCKLEY, JR., W. C. COUSLAND, J. A. HETTINGER, JR., W. A. HOLT, J. W. RASMUSSEN, JR.; CAPTS. A. A. ARDUNA, K. A. BARLOW, P. W. CHILD, JR., J. H. COOPER, J. R. GALVIN, E. W. MARTIN, J. T. MUNSEY, C. J. PIOLUNEK, J. H. RYAN, L. S. SORLEY III, A. C. STERLING, JR., R. R. SULLIVAN, N. TERZOPOULOS, F. W. WILLETT, J. H. YOUNG, JR.

*Visiting Professor:* DR. STEPHEN PARRISH, Cornell University (AY 1963-1964).

## Standard Courses

### EN 101-102. COMPOSITION, READING, AND SPEECH MAKING

Grammar, punctuation, and diction; the summary and paraphrase; the paragraph; analysis, logic, exposition, and research; diversified



reading selections, including narrative poetry, the drama, the short story, and the essay; the presentation of various types of speeches.

*5 Credit Hours (2.5 each term).*

#### EN 201. COMPARATIVE LITERATURE

Selections from the masterpieces of world literature. Among the writers studied are Homer, Plato, Dante, Shakespeare, Milton, Goethe, Yeats, Frost, and Eliot. The course emphasizes that literature treats generally of (1) man's relationship with God; (2) man's relationship with his fellow man; and (3) man's relationship with nature. The cadet develops his skill in speaking through classroom analysis of the assigned reading; he develops his skill in writing through the preparation of formal papers which include a criticism of a novel and a research paper.

*2.5 Credit Hours.*

#### EN 402. LITERATURE AND ADVANCED EXPOSITION

Readings in exposition, drama, and the novel. Advanced expository theme writing. The objectives are (1) to develop further the student's ability to write and speak effectively, and (2) to improve his skill in logical analysis and criticism.

*2.5 Credit Hours.*

### Advanced Courses

#### EN 151. THE EVOLUTION OF AMERICAN IDEALS AS REFLECTED IN AMERICAN LITERATURE, 1607-1860

Open to students qualified by the Department of English.

A study of the part played by American literature in the development of our national character. Among the writers studied are Bradford, Edwards, Franklin, Jefferson, Emerson, Thoreau, Hawthorne, and Poe.

*2.5 Credit Hours.*

#### EN 152. THE EVOLUTION OF AMERICAN IDEALS AS REFLECTED IN AMERICAN LITERATURE, 1860—THE PRESENT

Open to students qualified by the Department of English.

A continuation of EN 151. Among the writers studied are Whitman, Lincoln, Howells, James, Clemens, Crane, Sandburg, Benét, Hemingway, Steinbeck, and Faulkner.

*2.5 Credit Hours.*

## Elective Courses

### EN 481. THE NOVEL (*First term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A study of the development of the novel as a mode of literary expression. Approximately ten representative novels will be read.

*2.5 Credit Hours.*

### EN 482. SHAKESPEARE (*Second term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A study of selected plays and poems.

*2.5 Credit Hours.*

### EN 483. CONTEMPORARY LITERATURE (*First term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A study of the work of major American and British writers between 1900 and the present.

*2.5 Credit Hours.*

### EN 484. AMERICAN LITERATURE OF THE NINETEENTH CENTURY (*Second term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A brief survey of American literature with emphasis on the works of Emerson, Thoreau, Hawthorne, Melville, Mark Twain, Whitman, and James.

*2.5 Credit Hours.*

### EN 485. ENGLISH LITERATURE FROM THE BEGINNING TO 1660 (*First term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A study of representative authors and trends.

*2.5 Credit Hours.*

### EN 486. ENGLISH LITERATURE FROM 1660 TO THE PRESENT (*Second term*)

Prerequisites: Credit for EN 101-102 or 151-152, and 201.

A study of representative authors and trends.

*2.5 Credit Hours.*

## DEPARTMENT OF FOREIGN LANGUAGES

*Professor:* COL. W. J. RENFROE, JR. (Head of Department).

*Associate Professors:* LT. COLS. D. T. DUNNE, S. WILLARD.

*Assistant Professors:* LT. COLS. R. E. LENZNER, J. C. MARTIN; MAJS. H. E. CARTLAND, K. A. FRITH, J. E. O'BRIEN, R. ORLIFOFF, J. J. PORTERA, E. L. SMITH, H. J. VETORT; CAPT. J. E. PORTER; DR. F. TILLER; MR. N. MALTZOFF.

*Instructors:* LT. COL. W. C. THOMA; MAJS. T. A. AUSTIN III, C. A. OLSEN, J. R. ROSS, T. J. STACY, R. D. VANDERSLICE; CAPTS. F. G. AGATHER, C. D. BEAUMONT, T. M. BOWES, J. W. CRANCER, P. V. DiMAURO, W. R. FREDERICK, H. HEINSOO, J. R. HENRY, T. J. LIVESAY, J. E. MOORE, JR., P. F. PARKS, C. E. POOLE, JR., G. RICHARDSON, R. RINKER, M. C. SCHEPPS, JR., R. L. WHEATON.

*Civilian Instructors:* MESSRS. F. C. H. GARCIA, C. VIOLLET.

*Foreign Instructor:* MAJ. V. HERRERA (Mexican Army).

NOTE: Each cadet studies one foreign language—French, German, Portuguese, Russian or Spanish—during the first two years of his course at West Point. The Department of the Army specifies the approximate percentage of the entering class to be assigned to each language. Within these quotas cadets are assigned in accordance with their preferences and previous language experience. In general, a cadet may continue at West Point the study of a language begun elsewhere, unless he has reached a stage of proficiency equal to the average to be attained at West Point. Special advanced courses in French, German, and Spanish are given for those cadets who wish to continue the study of those languages and who show themselves qualified therefor in oral and written examinations given prior to the start of academic work. The advanced courses are given in lieu of and during the same time as the other language courses. A cadet may also take one or two additional semesters of language study among the elective courses of the fourth year.

## Standard Courses

LF	101-102	FRENCH
LG	101-102	GERMAN
LP	101-102	PORTUGUESE
LR	101-102	RUSSIAN
LS	101-102	SPANISH

Basic course in the fundamentals of the language. In keeping with the primary objectives of speaking and of understanding the spoken language, particular emphasis is placed on oral work. The audio-lingual skills are developed by reading aloud, repetition drills, question and answer exercises, prepared and extemporaneous dialogues, individual short talks, and by use of the language laboratory. After the first month of the course all classroom work is in the foreign language. Accelerated divisions in the above courses are provided when the number of cadets qualified therefor warrants a more rapid pace.

*5 Credit Hours (2.5 each term).*

LF	201-202	FRENCH
LG	201-202	GERMAN
LP	201-202	PORTUGUESE
LR	201-202	RUSSIAN
LS	201-202	SPANISH

Continuation of the 101-102 courses, with increased stress on the correct application of grammar principles. Continuing emphasis on discussions, dialogues, and individual talks. Periodic written compositions. Reading and discussion of one or two literary works and of historical, geographical, and military material of current interest. Six or seven lectures on the culture of the people whose language is being studied. Frequent aural comprehension exercises. All work conducted in the foreign language.

8 *Credit Hours* (4 each term).

### Advanced Courses

LF 151-152 FRENCH  
LG 151-152 GERMAN  
LS 151-152 SPANISH

Prerequisite: The passing of oral and written validating examinations at the beginning of Fourth Class year.

Grammar review with audio-lingual emphasis. Extensive use of pattern drills, question and answer exercises, dialogues, and individual talks. Reading and discussion of modern fiction. Periodic written compositions. All classroom work is in a foreign language.

5 *Credit Hours* (2.5 each term).

LF 251-252 FRENCH  
LG 251-252 GERMAN  
LS 251-252 SPANISH

Prerequisite: The 151-152 courses in the corresponding language.

Increased use of audio-lingual techniques, talks, debates, and interpreter exercises. Reading of a wider field of literature by French, German, Spanish, or South American writers. Greater emphasis upon the culture and history of the countries concerned.

8 *Credit Hours* (4 each term).

### Elective Courses

LF 481 FRENCH (*First term*)  
LG 481 GERMAN (*First term*)  
LP 481 PORTUGUESE (*First term*)  
LR 481 RUSSIAN (*First term*)  
LS 481 SPANISH (*First term*)

Prerequisite: The 201-202 courses in the corresponding language.



Readings in literary works by French, German, Brazilian, Russian, Spanish, and South American writers. Class discussions, oral and written compositions, all in the appropriate foreign language.

*2.5 Credit Hours.*

- LF 482 FRENCH (*Second term*)
- LG 482 GERMAN (*Second term*)
- LP 482 PORTUGUESE (*Second term*)
- LR 482 RUSSIAN (*Second term*)
- LS 482 SPANISH (*Second term*)

Prerequisite: The 481 course in the corresponding language, plus demonstrated ability to use and understand the language in more complex situations.

Additional literary readings, with greater concentration on modern works. Class discussions, comparative studies, oral and written presentations of conclusions, all in the appropriate foreign language.

*2.5 Credit Hours.*

- LF 485 FRENCH SEMINAR (*First term*)
- LG 485 GERMAN SEMINAR (*First term*)
- LS 485 SPANISH SEMINAR (*First term*)

Prerequisite: The 251-252 courses in the corresponding language.

Readings in the literature of France, Germany, and Spain, with class discussions, themes, etc., in the appropriate foreign language.

*2.5 Credit Hours.*

- LF 486 FRENCH ADVANCED SEMINAR (*Second term*)
- LG 486 GERMAN ADVANCED SEMINAR (*Second term*)
- LS 486 SPANISH ADVANCED SEMINAR (*Second term*)

Prerequisite: The 485 course in the corresponding language.

Advanced studies in the contemporary literature of France, Germany, and Spain, with class discussions, themes, etc., in the appropriate foreign language.

*2.5 Credit Hours.*

## DEPARTMENT OF LAW

*Professor:* COL. F. C. LOUGH (Head of Department).

*Associate Professor:* COL. R. H. IVEY.

*Assistant Professors:* LT. COLS. R. K. WEAVER, T. J. NICHOLS; MAJ. G. D. HEISSER; CAPT. J. H. WILLIAMS.

*Instructors:* MAJ. T. C. OLDHAM; CAPTS. J. B. KINUM, D. J. DANILEK, W. M. OTTO; LTS. A. K. DE PAUL, J. L. GEISER.

## Standard Courses

### LW 301. LEGAL PHILOSOPHY AND BASIC PRINCIPLES OF LAW LEGAL METHODS OF PROOF

*Legal Philosophy and Basic Principles of Law.* An examination of the principal theories of law which have been set forth by prominent legal philosophers of Western Civilizations as well as an introduction to the nature and application of law and a coverage of the traditional legal subjects to include contracts, torts, property and the law of persons.

*Legal Methods of Proof.* An introduction to the Anglo-American rules of proof and the logical basis for such rules with particular emphasis on developing an ability to think logically and to reason rationally in both legal and non-legal areas.

*2.5 Credit Hours.*

### LW 302. CONSTITUTIONAL LAW MILITARY LAW

*Constitutional Law.* An examination of the Constitutional concept of United States government including legislative, judicial and executive powers and limitations; individual rights under the Constitution; the defense establishment and constitutional powers with respect to International Law.

*Military Law.* A study of punishments, the component parts of crimes and offenses, criminal responsibility, selected articles of the UCMJ, jurisdictions, pretrial matters, nonjudicial punishment and courts-martial procedures. Basic theories and practical procedures are joined to enhance the cadet's ability to discharge his future responsibilities in military law.

*2.5 Credit Hours.*

## Elective Course

### LW 481. INTERNATIONAL LAW (*Either term*)

An introduction to International Law to include a discussion of the nature and sources of International Law; problems of nationality; recognition of states; jurisdiction of states; international agreements and diplomatic intercourse; and the law of war.

*2.5 Credit Hours*

## DEPARTMENT OF MATHEMATICS

*Professors:* COL. C. P. NICHOLAS (Head of Department), COL. J. S. B. DICK.

*Associate Professors:* COL. G. W. BIXBY; COL. W. H. KARSTEDT.

*Assistant Professors:* MAJS. T. F. BAMFORD, R. J. BURKE, A. M. R. DEAN, A. GERARDO, F. E. HAMILTON, M. J. KRUPINSKY, R. A. LITTLESTONE, W. H. LOWREY, J. R. MACKERT, H. E. STRICKLAND, JR., D. R. SWYGERT, H. W. TOUSLEY; H. S. WILSON, JR., CAPTS. R. W. DINWIDDIE, L. M. EBERHART, J. A. EUBANKS, K. H. GATES, JR., J. I. HINCKE, JR., R. M. MEYER.

*Instructors:* LT. COLS. M. C. CARRIGAN, P. J. DONOHUE; MAJS. R. H. ALLEN, A. J. ARMSTRONG, T. C. BIELICKI, T. H. M. CRAMPTON, J. V. FOLEY, G. E. LEAR, A. L. WHITLEY; CAPTS. R. A. BELTZ, J. C. BURKE, A. A. COCKRELL, JR., R. E. CLARK, J. S. CROSBY, R. W. GIULIANO, W. R. JOHANSEN, J. B. KAISER, J. F. MARTIN, R. M. MCPHERSON, D. F. NIDEVER, D. M. RHEA, B. W. ROSE, JR., R. L. SCHNEIDER, J. H. SEWELL, JR., J. F. VINCENT, F. A. WASKOWICZ.

Mathematics at West Point is organized into three programs, called standard, advanced, and elective. The standard program is given during the first two years, and successful completion satisfies the requirement in mathematics for graduation from the Military Academy. In completing this program, all cadets perform five independent exercises on the electronic digital computer. The advanced program consists of an accelerated version of the standard, augmented by advanced courses given also during the first two years. The cadets admitted to the advanced program are those whose aptitude or preparation in mathematics before entering West Point enables them to complete the standard program at an accelerated pace, thus gaining time for advanced work. The elective courses are designed primarily for cadets in their fourth year, but are open also to other cadets who have completed the standard or advanced programs, provided their schedules provide the time.

During his first year the cadet attends mathematics 6 days a week, during the second year 3 days a week. The standard and advanced programs consist of the following courses:

**Standard Program:** MA 101-102-201-202-204.

**Advanced Program:** Satisfaction of the Standard Program requirements plus either or both MA 152 and MA 251.

The details are given in the outline that follows:

### Standard Courses

#### MA 101. CALCULUS AND ANALYSIS

This is the fall semester course in the cadet's first year. Calculus is introduced early in the semester by work in foundations of the





number system to include partitioning, nested intervals, the concept of  $\epsilon$ , variables, limits and infinite position numerals, followed by work in controlled numerical approximations, functions of a single real variable, the  $\delta$ - $\epsilon$  criterion, and continuity. Prerequisite topics of plane analytic geometry not sufficiently covered in the student's mathematical preparation prior to entering the Military Academy are introduced at the proper time. The study of derivatives and differentials of algebraic and transcendental functions, with fundamental applications, is completed. Numerical methods suitable to electronic digital computation are emphasized.

*7.5 Credit Hours.*

#### MA 102. CALCULUS, ANALYSIS AND LINEAR ALGEBRA

This first-year spring semester course is a continuation of Mathematics 101. It continues with further applications of the derivative and differentials, including derivatives of functions defined parametrically; introduction to differential equations to include the central force problem and applications to long range trajectories and orbits; analytic geometry of three dimensions; linear algebra to include vector spaces, the algebra of matrices, linear transformations, and the theory of eigenvalues and eigenvectors. The course closes with a return to calculus, to include partial differentiation and applications, vector differentiation, the gradient, the divergence, the curl, and fundamental concepts of integral calculus. The latter includes formal integration and introduction to elementary numerical approximations of definite integrals. Problems in electronic digital computation, applying principles of calculus, are assigned concurrently. In addition there are a few lessons in spherical trigonometry essential for military applications.

*7.5 Credit Hours.*

#### MA 201. CALCULUS

This course is given during the first term of the cadet's second year of mathematics. It further develops integral calculus started in MA 102, to include applications to geometrical and physical problems, infinite series, expansion of functions, and multiple integrals. Problems requiring electronic computation are assigned concurrently.

*3 Credit Hours.*

#### MA 202. DIFFERENTIAL EQUATIONS

This is a brief course in differential equations, following MA 201. Continuing from the introduction to differential equations given in MA 102, it treats solutions of standard types of first and second order

equations using differential operators, method of undetermined coefficients, integrating factors, certain higher order equations, introduction to Laplace transforms, introduction to partial differential equations, and applications to physics and engineering. Methods requiring electronic computation are included.

*2 Credit Hours.*

#### MA 204. PROBABILITY THEORY AND STATISTICAL INFERENCE

This course covers the last three quarters of the second-year second term, and emphasizes calculus as a prerequisite. Included are fundamentals of probability theory and mathematical models to include random variables, probability distributions and measurements of these distributions, probability and density functions; binomial and normal distributions; use of de Moivre's theorem, the Central Limit theorem, and the Student-t, Chi-Square and Poisson distributions; basic statistical inference including sampling distributions, theory of estimation, hypothesis testing; correlation; and applications of these techniques to practical problems.

*3 Credit Hours.*

### Advanced Courses

One or more of the courses may be taken by selected cadets whose preparation in mathematics before entering the Military Academy exceeds the minimum requirement for admission. In addition, cadets whose demonstrated proficiency in mathematics at the Military Academy indicates that they are qualified to pursue the standard courses at a more rapid pace may complete an accelerated version of those courses and be admitted to one or more of the advanced courses.

#### MA 152. LINEAR ALGEBRA AND LINEAR PROGRAMMING

This course comes in the second term of the cadet's first year, and is given to those able to complete MA 101 and MA 102 early, by a combination of rapid acceleration and demonstrated facility in subject matter studied before admission to the Military Academy. Part of the time gained is devoted to  $2\frac{1}{2}$  credit-hours of work in linear programming and linear algebra beyond that in MA 102, with emphasis on military applications.

*2.5 Credit Hours.*

#### MA 251. ADVANCED CALCULUS

This course, in the first term of the cadet's second year, follows completion of most of MA 201 by advanced-group cadets in their

first year. It treats differential and integral calculus of scalar and vector functions of more than one variable to include: Jacobians, gradient, curl, divergence, multiple integrals, line and surface integrals, Green's Theorem, the Divergence Theorem and Stokes' Theorem, and applications to problems in physics and engineering.

3 Credit Hours.

## Elective Courses

These courses are offered as electives for the cadet in his third or fourth year at West Point.

### MA 481. LINEAR ALGEBRA AND LINEAR PROGRAMMING (*Either term*)

Scope is essentially the same as for linear algebra and linear programming coverage in MA 152, except for reduced depth of coverage resulting from shorter classroom periods.

2.5 Credit Hours.

### MA 483. ADVANCED CALCULUS I (*First term*)

Prerequisite: MA 201.

Scope is essentially the same as for MA 251 except for the reduced depth of coverage resulting from shorter classroom periods.

2.5 Credit Hours.

### MA 484. DIFFERENTIAL EQUATIONS (INTERMEDIATE) (*Either term*)

This course is an extension of the topics and methods introduced in MA 202. It includes ordinary differential equations; power series solutions and the more important special functions of engineering; Fourier series and orthogonal functions; partial differential equations and boundary value problems; numerical methods; and applications to science and engineering.

2.5 Credit Hours.

### MA 485. ADVANCED CALCULUS II (*Either term*)

Prerequisite: MA 251 or MA 483.

This course is primarily an introduction to functions of a complex variable, including algebra of a complex variable, elementary functions, limits, derivatives, Cauchy's Integral Theorem and Formula, series representation to include Taylor's and Laurent's series, theory of residues, conformal mapping and linear transformations, Poisson's Integral Formula and special topics in complex potential.

2.5 Credit Hours.

## MA 486. NUMERICAL ANALYSIS WITH ELECTRONIC DIGITAL COMPUTATION (*Second term*)

This course emphasizes the methods of numerical analysis with the digital computer in a strong supporting role. It includes methods grouping together the cadet's entire mathematical background in linear algebra, calculus and differential equations, in a context of modern numerical methods requiring programming and execution of solutions on the electronic computer.

*2.5 Credit Hours.*

### DEPARTMENT OF MECHANICS

*Professors:* COL. E. R. HEIBERG (Head of Department), COL. H. R. FRASER.

*Associate Professors:* MAJS. J. D. DAIGH, T. W. NELSON.

*Assistant Professors:* MAJ. E. A. GILBERT III, CAPTS. F. B. BOWLING, A. G. BROUMAS, W. J. EDDINS, W. R. ELLIS, R. N. GROVES, JR., A. JOHNSTON III, E. C. KEISER, R. A. LANGWORTHY, W. W. NOLL, S. R. SYDENHAM, C. D. WOOD.

*Instructors:* CAPTS. R. E. BAKER, J. L. DOZIER, K. E. GINTER, S. R. HANMER, JR., R. E. HUDSON, M. S. JONES, USAF, G. H. KRAFFT, USAF, G. U. LOFFERT, JR., C. M. RADLER, G. R. ROBERTSON, H. N. SCHWARZKOPF, J. K. STROZIER.

### Standard Courses

#### ME 301. THERMODYNAMICS

A study of the transfer and conversion of thermal energy and mechanical energy. The course includes a study of fundamentals, types of energy, properties of thermodynamic media, the first and second laws of thermodynamics, the ideal gas, thermodynamic processes, gas engine cycles, vapor power cycles, refrigeration, nozzles and jet propulsion, and mixtures. The more capable students study the fundamentals of heat transfer in lieu of certain reviews and examinations.

*Laboratory.* A correlation of theory and practice. The equipment used includes gasoline, Diesel and fuel research engines, steam engines and turbines, air compressors, gas turbines, and refrigeration and air conditioning units.

*4 Credit Hours.*

#### ME 302. FLUID MECHANICS

A study of the laws of mechanics as they apply to liquids, vapors, and gases. The course includes a study of fluid properties; principles of fluid statics; fluid flow concepts; impulse-momentum; viscous effects; closed conduit flow; boundary layer and basic drag concepts;



dimensional analysis and dynamic similitude; flow measurement; open channel flow; aerodynamics with emphasis on lift, drag, flight stability, and shock effects in transonic and supersonic flight; compressible flow. The more capable students solve a special problem in lieu of certain reviews and examinations.

*Laboratory.* Practical exercises illustrating theory previously studied in the classroom. Equipment used includes pumps, turbines, flow measurement devices, pipe friction measurement devices, supersonic and subsonic wind tunnels, smoke tunnels, and a supersonic nozzle thrust stand.

*4 Credit Hours.*

### ME 303. ENGINEERING MECHANICS I

The principles of mechanics considered essential for an understanding of basic engineering, including the study of statics and strength of materials. The statics portion of the course includes components of forces, moments, couples, resultants, free body diagrams, equilibrium, centroids, centers of pressure, truss analysis, and friction. The strength of materials portion considers the relations between loads and the resulting deformation and stresses in nonrigid bodies. Axial, torsional, and flexural loadings are studied. Primary emphasis is placed on elastic behavior, but a brief analysis of the plastic range of stress is included. Also included are stress at a point using Mohr's circle, moments of inertia of areas, statically indeterminate axially loaded structures, thin wall vessels, temperature effects, torsion of circular members, flexure, shear and moment diagrams, shear in beams, beam deflections by double integration method and beams of two materials.

*4 Credit Hours.*

### ME 304. ENGINEERING MECHANICS II

A continuation of Mechanics 303 including additional topics in strength of materials, and engineering dynamics including kinematics and kinetics. The strength of materials portion includes the study of columns and combinations of axial, torsional, and flexural loads. Five laboratory exercises (one conducted during ME 303) illustrate the theory developed in the strength of materials portion. Three of the laboratories are conducted by closed circuit television. The kinematics portion includes absolute and relative motion of particles and rigid bodies, displacement, velocity, and acceleration, and trajectories. The kinetics portion includes the study of the force, mass, and acceleration method, the work and kinetic energy

method, and the impulse and momentum method for particles and rigid bodies with translation, rotation, or plane motion. Impact, simple harmonic motion, and gyroscopic action are studied.

*4 Credit Hours.*

## **Advanced Courses**

### **ME 351. ACCELERATED THERMODYNAMICS**

A course for cadets who have demonstrated ability to proceed more rapidly through the subject material (including selected laboratory exercises) of ME 301.

*4 Credit Hours.*

### **ME 352. CLASSICAL THERMODYNAMICS**

Prerequisite: Successful completion of ME 351.

Further study of the First and Second Laws of thermodynamics and their consequences with emphasis on a rigorous mathematical analysis of Thermodynamic systems and media.

*1.5 Credit Hours.*

### **ME 353. ADVANCED ENGINEERING MECHANICS I**

Prerequisite: Demonstrated ability in mathematics and physics for more rapid and comprehensive work.

An accelerated coverage of the subjects indicated in ME 303. The statics portion of the course utilizes the vector approach with emphasis on three-dimensional problems, and covers the additional topics of virtual work and minimum potential energy. The strength of materials portion covers the additional topics of principal stresses for flexure, shear flow and shear center, torsion in noncircular sections, inelastic column theory, repeated loading, dynamic loading, and theories of failure.

*4.5 Credit Hours.*

### **ME 354. ADVANCED ENGINEERING MECHANICS II**

Prerequisite: Demonstrated ability and successful completion of ME 303 or 353.

An accelerated coverage of the subjects indicated in ME 304 using vector approach in deriving basic relationships and in solving problems. A more rigorous study of three-dimensional motion, gyroscopic effects, and vibrations. Planetary motion, jet and rocket propulsion. An introduction to advanced energy methods (LaGrange's Equations).

*5 Credit Hours.*

## ME 356. ADVANCED FLUID MECHANICS.

Prerequisite: Demonstrated superior ability in Thermodynamics and Engineering Mechanics.

A vector-oriented coverage of the topics listed in ME 302, with emphasis on the theoretical and mathematical development of the general laws of fluid mechanics. A knowledge of vector algebra is assumed; however, the field operators of vector calculus are developed carefully and thoroughly.

*Laboratory.* Practical exercises illustrating theory developed in the classroom. Equipment available includes pumps, turbines, flow measurement devices, pipe friction measurement devices, supersonic, subsonic and smoke tunnels, and a supersonic nozzle thrust stand.

*5 Credit Hours.*

## Elective Courses

### ME 481. GAS DYNAMICS (*Either term*)

Prerequisites: ME 301 (or 351-352), ME 302 (or 356), ME 303 (or 353), ME 304 (or 354).

A course covering the general field of compressible fluid motion including topics of interest in aeronautics, astronautics, and the study of ballistic missiles. The course presents basic principles of fluid dynamics and thermodynamics and proceeds to concepts peculiar to both subsonic and supersonic compressible flow. Principal analysis of fluid motion is one-dimensional covering isentropic flow, normal shock waves, and flow in ducts. An introduction to two-dimensional supersonic flow is also presented including a study of oblique shock waves.

*2.5 Credit Hours.*

### ME 483. SPACE MECHANICS (*Either term*)

Prerequisites: ME 301 (or 351-353), ME 302 (or 356), ME 303 (or 353), ME 304 (or 354).

An introduction to the trajectory problem of the space vehicle, applying the principles of mechanics to the orbits of satellites and other bodies in space acted on by a central force system. The course includes a study of the bodies of the solar system, the development of Kepler's Laws of motion, the geometry of two-body conic orbits, principal coordinate systems, and astrodynamic constants. A brief consideration is made of the 3-body problem, the n-body problem, and several methods of orbit determination. The final portion of the

course is a study of rendezvous, interception, and interplanetary orbits.

*2.5 Credit Hours.*

## DEPARTMENT OF MILITARY ART AND ENGINEERING

*Professors:* COL. C. H. SCHILLING (Head of Department), LT. COL. T. E. GRIESS.

*Associate Professors:* COL. J. R. ELTING; LT. COLS. W. F. ROOS, A. P. WADE.

*Assistant Professors:* LT. COL. P. F. BRAIN; MAJS. H. L. ARNOLD, G. E. JESTER, L. G. MICHAEL, R. A. ROBERGE, R. H. SMITH, A. F. TROMPETER, V. E. WHAN; CAPTS. F. M. ANKLAM, D. D. LUDWIG, J. M. MILLER.

*Instructors:* LT. COLS. R. W. ARGO, C. P. BENEDICT, R. W. REISACHER; MAJS. H. L. ARNOLD, W. H. ELLIOTT, A. F. GRUM, C. W. GUTH, R. B. HUGHES, M. D. JOHNSON, L. H. LUMSDEN, J. R. McDONALD, T. R. PETERSON, J. D. THOMAS; CAPTS. D. C. LUDWIG, J. M. MILLER, J. L. PIGG.

### Standard Courses

HM 401-402. HISTORY OF THE MILITARY ART.

Prerequisites: TA 301-302.

The evolution of the art of war—on land, on sea, and in the air, and its probable course in the future. Beginning with the campaigns of Alexander of Macedon, this course explains the changes in concepts of warfare which led to the replacement of royal armies by national armies, and to the emergence of global and total wars. The historic development and modern application of all types of warfare are considered, from guerrilla operations to nuclear warfare. Throughout the course, emphasis is given to: the impact of continuous technologic and industrial progress on the techniques of warfare through the development of new weapons and equipment; the gradual recognition, formulation, and application of the governing principles of war; the increasing influence of logistics on strategy and tactics; the growing interrelationship of land, sea, and air power, and the consequent problems and principles involved in the organization and functioning of high commands in joint operations; the resurgence of irregular and unconventional warfare; the attributes of outstanding great captains and their contributions to the art of war; and to the doctrines and philosophies of important military thinkers and writers. The course also points out the impact on warfare of nonmilitary factors—treated in detail by the Department of Social Sciences—concurrently with the study of military operations.

*8 Credit Hours (4 each term).*



## CE 401. STRUCTURAL ANALYSIS

Prerequisites: ME 303-304.

Analysis of stresses in statically determinate and indeterminate structures and structural members due to uniform loadings, concentrated loadings, and combinations thereof. It includes determination of reactions, shear, moment, and axial stresses; placement through the use of influence lines of moving live loads to produce maximum stress; the analysis of maximum stress in simple and subdivided, parallel and nonparallel chord trusses, continuous beams, and basic structural frames; the analysis of members subject to reversal of stress; introduction to the analysis of long span structures, space frames, and cables; and approximate methods of analysis of indeterminate structures. Analytical methods utilized in indeterminate structures include moment-area and moment distribution. The augmented course given upper sections (upper 30-40 percent of class) consists of the above with the following additional material: influence lines for K and subdivided trusses; analyses of more complicated indeterminate structures using the methods of virtual work and moment distribution with sidesway correction; settlement and elastic supports; and introduction to slope deflection. Throughout the course emphasis is given to development of an understanding of the engineering philosophy and decision making process.

*4 Credit Hours.*

## CE 402. STRUCTURAL DESIGN, SOILS AND CONCRETE

Prerequisite: CE 401.

Study of the principles and theory of design of steel and timber structures, with an introduction to reinforced concrete design. It includes design of beams with consideration of flange buckling, plate girders, tension and compression members (built-up members), members subject to combined direct stress and flexure, riveted and welded joints; engineering characteristics of timber as a material; design of a simple timber structure; solution of a complete engineering analysis-design problem starting with the development of the engineering concept and requiring creative thought and application of principles studied previously. The augmented course given upper sections consists of the above with the following additional material: a more comprehensive engineering analysis-design problem; the basic theory of reinforced concrete design to include design of beams, slabs, web reinforcement, and columns; introduction to prestressed concrete design.

Study of soils classification and identification systems, engineering characteristics of soils, soils design based upon the California Bearing Ratio as applied to highways and airfields, and protective characteristics of soils against nuclear weapons effects. Instruction in concrete includes engineering characteristics of concrete as a material; fundamentals of concrete proportion and mix design, placement and curing; use in shielding against nuclear radiation effects. Concrete laboratory work includes standard quality and control tests and demonstration of the fundamental laws. The augmented course given upper sections includes a more extensive coverage of the above topics. Throughout the course emphasis is given to development of an understanding of the engineering philosophy and decision-making process.

*4 Credit Hours.*

## **Advanced and Honors Courses**

### **CE 451-452. HONORS COURSE IN CIVIL ENGINEERING**

Prerequisites: Standing in top 15 percent of class in Mathematics, Mechanics and Physics.

The Honors Course for exceptionally capable cadets includes the topics listed above in the two standard courses (CE 401 and CE 402). The cadet accelerates this study at a pace governed by his own individual capability. He is excused from regular class formations, instead meeting weekly (as a minimum) with his advisor. Teaching techniques normally used for graduate studies are employed, emphasizing individual study and research. The time gained is used to cover one or more advanced topics of cadet choice or an individual analytical and/or laboratory project, where approved by the advisor. Typical approved additional topics from which the cadet may choose include but are not restricted to the following:

*Structural Analysis.* Analysis of space frames; analysis of indeterminate structures to include the general method, slope deflection, conjugate structure, and column analogy; introduction to analysis of structures subjected to dynamic loadings; introduction to analysis of structures by the plastic theory; electronic digital computers and their application to the solution of civil engineering problems.

*Structural Design.* An extension of reinforced concrete design; basic theory of prestressed concrete; and a more advanced engineering analysis-design problem involving individual analytical investigation and/or experimental investigation.

*Soils and Concrete.* Characteristics of air-entrained concrete, soil mechanics laboratory, and soil trafficability.

*8 Credit Hours.*

## CE 453-454. INTRODUCTION TO NUCLEAR ENGINEERING

This course is offered to cadets of demonstrated high ability in Mathematics, Electricity and Mechanics of Solids, in lieu of the standard courses in Civil Engineering 401 and 402. It provides a study of the engineering principles involved in design of nuclear reactors and nuclear powerplants and an appreciation of the interrelations and effects of operating conditions on reactor design variables. The course includes fundamentals of structural theory; consideration of biologic effects of nuclear radiation; absorption of nuclear radiation in reactor shielding materials; structural analysis of reactor pressure vessels and containment structures, including consideration of thermal stresses and radiation damage to vessel materials; reactor core design, emphasizing heterogeneous, enriched-uranium reactors; coolant hydraulics and heat transfer in reactors and reactor system heat exchangers; and control of reactors during steady-state and transient operating conditions. The course concludes with an engineering analysis-design problem which begins with the development of an engineering concept for a power reactor suitable for furnishing electricity at remote military installations and continues the design of the reactor requiring creative thought and application of principles studied earlier in the course. Throughout the course emphasis is given to development of an understanding of the engineering philosophy and decision-making process.

Concurrent requirement in the first term: Elective, Electricity 493. Nuclear Reactor Theory.

*8 Credit Hours.*

## Elective Courses

HM 481. EVOLUTION OF MODERN WARFARE (1400-1900)  
(*First term*)

Prerequisite: HM 401 may be taken concurrently.

HM 484. TWENTIETH CENTURY WARFARE (1900—THE PRESENT)  
(*Second term*)

Prerequisite: HM 401.

The elective courses HM 481 and 484 are more penetrating studies of the specified military eras covered broadly in HM 401-402.

*2.5 Credit Hours each.*

## HM 486. MILITARY HISTORY OF INSURGENCY AND COUNTERINSURGENCY (*Second term*)

Prerequisite: HM 401–402, or may be taken concurrently.

This course provides a study of the art of waging and countering revolutionary warfare to accomplish national objectives. It will supplement HM 401–402 by probing the area of revolutionary warfare in greater depth and breadth than is possible during the regular course. The strategic military aspects at the national level will receive main emphasis. Theoretical aspects of waging and countering revolutionary warfare will be treated as well as historical studies of insurgency campaigns (e.g., Indochina, Greece, Vietnam, etc.). Additionally, other campaigns which stress historical development of unconventional warfare will be covered (e.g., operations against Napoleon in Spain and the Philippine Insurrection).

*2.5 Credit Hours.*

## CE 481. DESIGN OF CONCRETE STRUCTURES (*Either term*)

Prerequisites: ME 303–304.

The theory of reinforced concrete design and analysis. This course will include a basic study of concrete as a material, laboratory investigations and demonstrations, and the design and analysis of conventional structural shapes and basic structures. The scope includes beams, columns, simple two-way and flat slabs, eccentrically loaded columns and footings. Ultimate strength analysis and design, and an introduction to prestressed concrete are covered. The course finishes with an analysis and design problem which brings into play most of the material covered in the course. A small number of selected cadets will participate in the fiberglass reinforced concrete research program underway within the department. Use of computers is included wherever appropriate.

*2.5 Credit Hours.*

## CE 482. ADVANCED STRUCTURAL ANALYSIS (*Second term*)

Prerequisite: CE 401.

This course provides a continuation of the study of structural analysis into the area of indeterminate structures. Methods of analysis appropriate to both the elastic theory and the plastic theory will be studied. Elastic theory methods will include conjugate beam, energy methods, slope deflection, moment distribution to include two degrees of freedom, and numerical approximate analysis. For those cadets who so desire, a special subcourse will be offered in the appli-



cation of electronic digital computers to the solution of structural problems to include the basic principles of programming techniques, capabilities, and limitations.

*2.5 Credit Hours.*

### CE 483. SOIL MECHANICS (*First term*)

Prerequisites: ME 301-302-303-304.

A study of the basic principles and fundamentals of soil mechanics and of the application of these principles to engineering problems. Basic laboratory work includes compaction tests, Atterberg limits, grain size analysis, CBR test, water content determination, unconfined compression test, and model analysis of flow lines and the "quick" condition. Advanced laboratory work is available to selected cadets. Engineering problems will include the military problem of cross-country mobility as affected by soil trafficability, design of embankments and military airfield pavements, and foundation problems such as the prediction of settlement of structures during and after construction, selection of type foundation for given soil conditions, footings and raft foundations, pile and pier foundations, retaining walls and abutments, shoring and underpinning, stabilization and drainage, and excavation and bracing procedures.

*2.5 Credit Hours.*

### CE 484. INDIVIDUAL ENGINEERING PROJECTS (*Second term*)

Prerequisite: CE 401.

The objective of this course is to permit the cadet to study specialized topics of military and civil engineering not covered in the standard course or to permit him to concentrate his study upon an area of particular individual interest. The course will be conducted on a small group or individual basis and will consist of field trips, laboratory and classroom work and group discussion. The exact scope of the course of study will be established through discussion between the cadet and the Course Director. The course will be presented so that the cadet is required to establish the definition of the problem and its parameters; to study the fundamentals involved; to organize his own plan of attack; to determine his laboratory procedure if laboratory work is involved; to analyze the problem; and to achieve a solution. Throughout, emphasis will be given to the engineering decision-making process.

*2.5 Credit Hours.*

## DEPARTMENT OF MILITARY HYGIENE

*Professor:* COL. C. H. GINGLES (Head of Department).

*Assistant Professor:* CAPT. W. H. JOHNSON, JR.

The Department of Military Hygiene presents instruction to the cadets during their first two years at the Military Academy.

During the summer of the Fourth Class year, the cadet receives instruction in self and first aid, field sanitation and personal hygiene. In the academic portion of the Fourth Class year, the cadet receives instruction in the basic anatomy and physiology of the reproductive system and the effects of alcohol, tobacco and drugs.

During the Third Class summer training, the cadet receives instruction in the effects of the environment on units in the field and additional instruction in first aid with emphasis placed on the responsibility of the commander at small unit level.

## DEPARTMENT OF ORDNANCE

*Professor:* COL. J. D. BILLINGSLEY (Head of Department).

*Associate Professors:* LT. COL. D. F. BURTON, MAJ. G. M. MONTGOMERY.

*Assistant Professors:* MAJS. E. J. BOYLE, M. J. HERBERT; CAPTS. J. S. CHESBRO, R. M. GOMEZ, J. L. PALMER, R. H. SUGG, R. F. TRABERT.

*Instructors:* CAPTS. J. R. AKER, C. F. BUCK, C. B. DONOVAN, J. H. HUFF, D. S. OBERG, D. R. REINHARD.

*Laboratory Officer:* CWO M. A. STEWART.

### Standard Course

#### OE 401-402. ORDNANCE ENGINEERING

Prerequisites: EL 301, 302, 304, 305; ME 301, 302, 303, 304.

This course is designed to give the cadet experience in the application of previously studied scientific and engineering principles to weapon systems. Coverage is given to sources of energy such as chemical, electrical, and nuclear types; ballistics including electronic computers, weapon system components, trajectories, flight stabilization, servomechanisms, guidance, fuzes, and terminal effects; propulsion including the rocket, gas turbine, spark and compression ignition engines, power transmission, engineering materials, land and air locomotion; weapon system design study including the development of parameters for and the analysis and design of a proposed new Army weapon system. Integrated laboratory exercises are included.

8 Credit Hours.

## Honors Course

### OE 451-452. HONORS COURSE IN ORDNANCE ENGINEERING

Prerequisites: Standing in top 10 percent of class.

The Honors Course for exceptionally capable cadets includes all topics listed for the standard course (OE 401-402). The cadet accelerates this study at a pace governed by his own individual capability. A minimum of one class per week is scheduled in lieu of regular class attendances. Teaching techniques normally used for graduate studies are employed, emphasizing individual study and research. The time gained is used to cover one or more advanced topics of cadet choice or an individual analytical and/or laboratory project, where approved.

*8 Credit Hours.*

## Elective Courses

### OE 481. AUTOMOTIVE ENGINEERING (*Either term*)

Prerequisites: ME 301, 302, 303, 304 (ME 303 and ME 304 may be taken concurrently).

An integrated engineering course designed to stress the engineering approach in the analysis of vehicular engineering systems. After an introduction to the problem of land mobility, the course covers the detailed analysis of powerplants with their associated auxiliary systems, as well as power train and chassis components. The course is climaxed by the investigation of vehicle performance in terms of acceleration, power and load capacity both on hard surface roads and in cross country operation. An integrated laboratory is designed to prove the theoretical analysis. Consideration is given to practical problems encountered by the U.S. Army in the field.

*2.5 Credit Hours.*

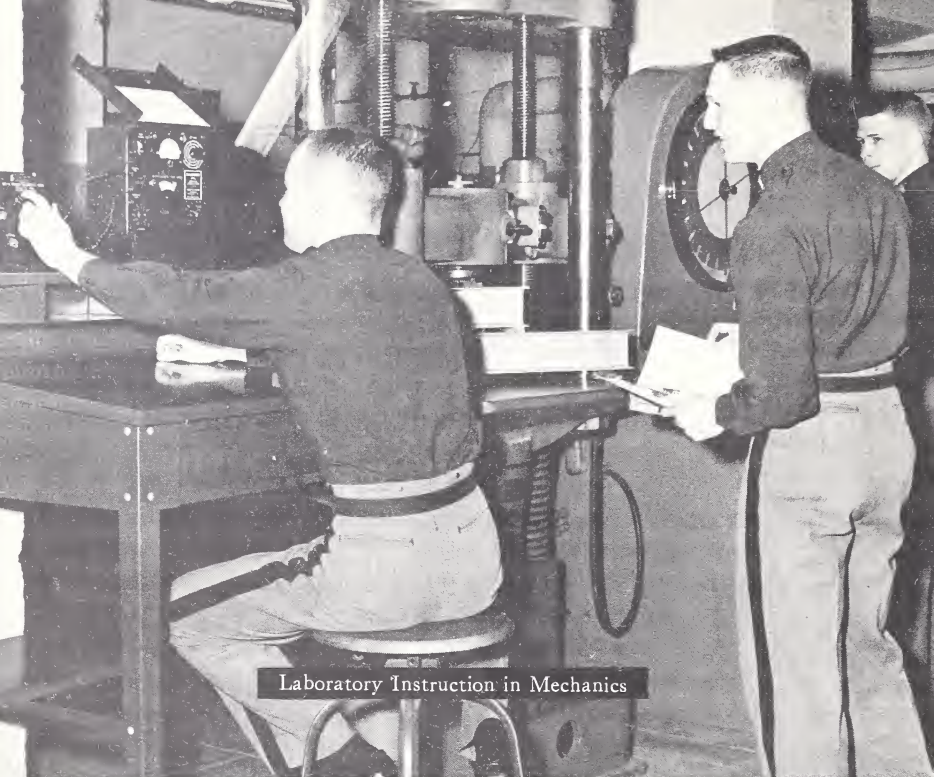
### OE 482. INDIVIDUAL ORDNANCE PROJECT (*Second term*)

Prerequisite: OE 401 or OE 451.

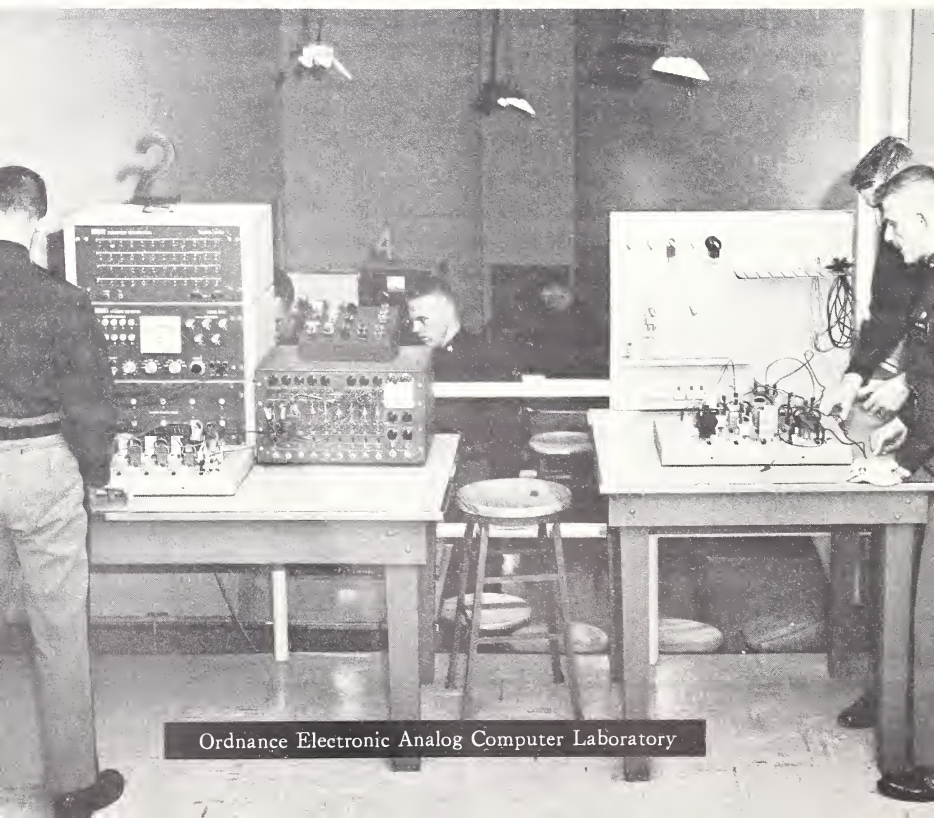
The objective of the course is to permit advanced or specialized study of scientific principles applied in the field of Ordnance Engineering. Study may include either or both theoretical or laboratory effort based upon a sound preparatory investigation in mathematics and/or the basic sciences. Conduct of course will be on an individual or small group basis. Exact scope of study to be established by consultation between the cadet and the Professor of Ordnance.

*2.5 Credit Hours.*





Laboratory Instruction in Mechanics



Ordnance Electronic Analog Computer Laboratory



### OE 483. ENGINEERING MATERIALS (*First term*)

Prerequisites: CH 201-202; EL 305; ME 303.

The course provides an introduction to the properties and behavior of solid materials commonly used in engineering applications. Emphasis is placed on the structural and electronic characteristics which determine these properties. Coverage includes crystallography, atomic bonding and radii, solid solutions, equilibrium conditions and phase diagrams, rate reactions, elastic and plastic behavior, dislocation theory, thermal conductivity and specific heat, and the electrical conductivity of metals. Integrated laboratory periods include instruction in: x-ray diffraction, thermal analysis, metallurgical microscopy and specimen preparation, electron microscopy, photomicrography, and photographic darkroom techniques.

*2.5 Credit Hours.*

### OE 485. MANAGEMENT ENGINEERING (*Either term*)

Prerequisite: MA 204.

An analytical approach to the development and application of management engineering techniques for effective work planning and control. Emphasis on the scientific method of analysis and its application in achieving effective use of resources, increased operational readiness of equipment, increased productivity of personnel, increased quality of work, and improved bases for decision-making. Development of techniques to include schematic models, engineering programming, statistical methods and economic analysis. Concurrent application of techniques to analyses of selected management problems and cases involving organizational structure, process and facilities planning, methods study and motion economy, work measurement and scheduling, inventory control, process control, quality control and cost control. Consideration of an integrated management control system including the application of automatic data processing equipment. Term project involving analysis of cases selected from local post support activities.

*2.5 Credit Hours.*

## DEPARTMENT OF PHYSICS AND CHEMISTRY

*Professors:* COL. J. R. JANNARONE (Head of Department).

*Associate Professors:* LT. COL. D. G. MACWILLIAMS, LT. COL. R. E. THAYER, MAJ. W. J. HOFF, JR.

*Assistant Professors:* MAJS. P. J. KENNY, W. S. O'SULLIVAN, R. A. SHADE; CAPTS. H. W. BUTLER, R. B. HENRY, F. S. HOLMES, JR., C. H. JONES, JR., P. MILLER, JR., A. V. RICHARD, R. C. H. SCHMIDT, C. H. STEVENS III, E. A. WILHELM.

*Instructors:* CAPTS. T. J. CONNELL, R. M. ELTON, J. A. GIBBS II, G. W. B. GLEN, J. B. HALL, W. M. HOOKER, J. P. HUNTINGDON, W. R. LICHT, J. A. LUPI, W. V. MURRY, R. M. PASTORE, H. E. SOYSTER, G. E. WIEN, J. S. WILLIS, JR.

### Standard Courses

#### PH 201-202. GENERAL PHYSICS

A course in college physics for students of science and engineering, covering contemporary as well as classical concepts. Vector notation, vector algebra, and calculus are used throughout the course.

*Laboratory.* A laboratory program designed to develop an appreciation of scientific techniques and to illustrate fundamental physical concepts is correlated and integrated with the course in physics.

*8 Credit Hours* (4 each term).

#### CH 201-202. GENERAL CHEMISTRY

The study of the nature of matter and its nuclear, atomic, and molecular structure, the changes that take place in matter, and the associated kinds and amounts of energy involved, with particular emphasis on the fundamental concepts, principles, theories, and laws of chemistry.

*Laboratory.* The laboratory program is integrated with the general chemistry course. It has been designed to develop an appreciation of investigative techniques, to illustrate fundamental concepts, and to include an introduction to qualitative analysis.

*8 Credit Hours* (4 each term).

### Advanced Courses

#### CH 251. INORGANIC CHEMISTRY

A one-semester study of special areas in inorganic chemistry for cadets who have demonstrated proficiency in the essentials of Chemistry 201.

*Laboratory.* Selected experiments illustrate the reactions and mechanisms of ionic and covalent compounds.

*4 Credit Hours.*

## CH 252. ORGANIC CHEMISTRY

A study of the fundamental principles and theories of organic chemistry, with emphasis on the concept of reaction mechanisms and structure as applied to molecules and chemical bonds.

*Laboratory.* Experiments are selected to illustrate the behavior and identification of functional groups, and the preparation of organic compounds.

*4 Credit Hours.*

## PH 251-252. PHYSICS

A two-semester course for selected students covering the material of PH 201-202 at an accelerated rate, in order to provide time for deeper penetration into certain subject areas and more comprehensive treatment of others.

*Laboratory.* The laboratory program is an integral part of the course. The experiments conducted are greater in number and of a more sophisticated nature than those conducted in PH 201-202.

## Elective Courses

### PH 481. INTRODUCTION TO THEORETICAL PHYSICS I

*(First term)*

A mathematical treatment of the fundamental laws, principles and concepts of classical mechanics, including laws of motion, gravitational fields, particle dynamics, rigid body motion, and LaGrangian and Hamiltonian formulation, utilizing vector analysis and differential equations.

*2.5 Credit Hours.*

### PH 482. INTRODUCTION TO THEORETICAL PHYSICS II

*(Second term)*

Prerequisites: PH 481, or MA 251, or MA 482, or ME 353-354.

A continuation of PH 481, covering electrostatics, magnetic fields, electromagnetic induction, Maxwell's Equations, electromagnetic properties of material media, physical optics, special relativity, and wave mechanics.

*2.5 Credit Hours.*

## CH 481-482. PHYSICAL CHEMISTRY

A course covering standard topics in physical chemistry such as: description of physicochemical systems, laws of thermodynamics, thermodynamics of chemical equilibrium, changes of state, solutions

and phase equilibrium, kinetic theory, electrochemistry, reaction kinetics, colloids and radioactivity.

*Laboratory.* Selected experiments are performed using precision physical measurements to illustrate colligative properties, thermochemistry, ionic equilibrium, transference and conductance, electrolysis and cell functions.

*5 Credit Hours (2.5 each term).*

#### PH 484. QUANTUM MECHANICS (*Second term*)

An introductory course stressing the physical meaning of quantum theory. Topics covered include: DeBroglie waves, interpretation of the wave function, Schroedinger's equation; the free particle, square-well potentials, simple harmonic oscillator, hydrogen atom, Zeeman effect, angular momentum operators, spin, spin-orbit interaction, relativistic corrections, perturbation theory.

### DEPARTMENT OF SOCIAL SCIENCES

*Professors:* COL. G. A. LINCOLN (Head of Department), COL. A. A. JORDAN, JR.

*Associate Professors:* LT. COL. R. E. LYNCH, LT. COL. R. H. NYE (Permanent Associate Professor); MAJS. E. DENTON III AND JAY B. DURST (Executive Officer).

*Assistant Professors:* MAJS. R. E. CARIGNAN, A. MANSINNE, G. K. OSBORN, J. W. SEIGLE, W. P. SNYDER; CAPTS. A. S. ALBRO, D. D. HORNER, R. L. HUNT, L. D. OLVEY, A. D. RAYMOND, A. A. SARDO, USMC, D. P. SHAW, B. T. THOMPSON, D. E. VESSER, M. B. WIER, W. M. WIX; LTS. W. D. McCLELLAN AND S. R. WILIAMSON.

*Instructors:* MAJS. J. H. BUCK, J. W. MANN, D. H. MARTIN, S. C. SARKESIAN; CAPTS. A. B. BRADFORD, F. J. BROWN III, M. J. COLLINS, USAF, O. B. COMBS, E. F. FITZSIMMONS, R. L. GRETE, USAF, R. L. HUNT, H. W. JOHNSON, J. R. MURPHY, USAF, C. R. PARKER, G. R. PHILLIPS, F. J. SCHOBER, J. F. SLOAN, H. TWICHELL; LTS. L. PARKUS, J. M. ROLLS, D. R. SHERK, K. W. SMITH.

#### SS 201. HISTORY OF EUROPE AND AMERICA: 1500 to 1870

A survey of the major developments in the history of Europe since the Renaissance. Provides a foundation for further study of the institutions and issues of modern Western civilization. The central thread is political history, to which economic, intellectual and social developments are related, often through analysis of selected source readings.

*2.5 Credit Hours.*

#### SS 202. HISTORY OF EUROPE AND AMERICA SINCE 1870

Continues the survey begun in SS 201, with increasing emphasis upon the internal development of the United States, and the growing



interdependence of Europe and North America in their political and economic affairs.

*2.5 Credit Hours.*

### SS 301. ECONOMIC PRINCIPLES AND PROBLEMS

A survey course in basic economic principles providing for the application of these principles to specific problems of public policy in this and following courses.

*2.5 Credit Hours.*

### SS 302. UNITED STATES GOVERNMENT

A study of the dynamics of U.S. politics, with emphasis on the processes, institutions, and problems of the national government, and including a survey of the basic aspects of state and local government. This course provides a conceptual framework of political science for later courses. It also includes an integrated subcourse in Economics of National Security which is an extension of the public policy problems portion of Social Sciences 301.

*2.5 Credit Hours.*

### SS 401. CONTEMPORARY FOREIGN GOVERNMENTS

A comparative survey of the politics, political institutions, and problems of selected foreign countries, including Great Britain, France, West Germany, and the Soviet Union. Consideration is also given to current developments in the movement for the achievement of political unity in the European Community.

*2 Credit Hours.*

### SS 403. HISTORY OF MODERN ASIA

A cultural-political study of China, Japan, and India, designed to characterize the traditional cultures and societies of each, to study the impact of the West on these traditional societies, and to analyze the resultant problems and issues of today.

*2 Credit Hours.*

### SS 407. INTERNATIONAL RELATIONS

An interdisciplinary study of the world environment, building upon previous Social Sciences courses, with particular emphasis upon the nature of the forces changing the relationships among nations in the post-World War II era and on the role of the United States in world affairs. The theories and practices of interstate behavior are studied as well as the basic influences which condition the formulation and execution of U.S. foreign policy. The course terminates with an in-



Thayer Hall Entrance



Thayer Hall Auditorium

tensive study of a developing area with emphasis on U.S. Policy. The areas studied include Middle East, Africa, Latin America, South-east Asia.

*4 Credit Hours.*

## **Elective Courses**

### **SS 381. HISTORY OF RUSSIA (*Either term*)**

A study of the historical development of the Russian nation and its relations with the Western world, with particular emphasis on the nature of the Russian Revolution, the regime which it produced, and the Communist Bloc as it presents a challenge to the West.

*2.5 Credit Hours.*

### **SS 382. HISTORY OF UNITED STATES FOREIGN RELATIONS (*Spring term*)**

A study of the record of U.S. diplomacy from the early period of isolation to the current pattern of global alliances and commitment to the Atlantic Community. The events of this record are examined with emphasis on the evolving nature and broad currents of the foreign policy of the United States.

*2.5 Credit Hours.*

### **SS 383. MIDDLE EASTERN STUDIES (*Fall term*)**

A study of the historical development of the modern Middle East, with emphasis on the rise of Islam, the development of Islamic civilization, the impact of the West, and the modern problems and issues arising from Western and Communist influences.

*2.5 Credit Hours.*

### **SS 384. LATIN AMERICAN STUDIES (*Spring term*)**

A study of the historical developments of Latin America to include the traditional cultures, the impact of Europe and the United States, and the emergence and development of the independent states. From this historical base the dynamic of present-day change in Latin America is examined in terms of its economic, political and social-psychological aspects.

*2.5 Credit Hours.*

### **SS 385. COMPARATIVE ECONOMIC SYSTEMS (*Fall term*)**

A study of the philosophical and theoretical bases of Capitalism, Socialism, and Communism coupled with an analysis of problems in the actual operation of these economic systems. The main issues of



the alternative systems are raised in terms of the challenges posed by changing environments.

*2.5 Credit Hours.*

#### SS 386. POLITICAL PHILOSOPHY (*Spring term*)

An introduction to the classic writings of Western political thought, emphasizing the emergence and refinements of the concept of constitutional government and the ethical values and other theory which underlie that concept. Particular attention is paid to the universal applicability of the writings of the great philosophers and their relationship to the political problems of today.

*2.5 Credit Hours.*

#### SS 483. NATIONAL SECURITY PROBLEMS (*Either term*)

A study designed to familiarize the student with two related aspects of national security, the process by which decisions bearing on national security are reached and the place of the professional officer in national security affairs. These objectives are approached through inquiry into the organizational-procedural setting of national security as well as the concepts and terminology of security strategy. Both strategic and decision-making factors are combined in case studies of actual decisions. Cadets have the opportunity to hear the views of several distinguished visiting authorities, both civilian and military, and to take an educational trip to an institution concerned with a broad array of security problems.

*2.5 Credit Hours.*

#### SS 485. PROBLEMS OF THE DEVELOPING NATIONS (*Either term*)

A study of the political systems of the developing nations of Southeast Asia and Sub-Saharan Africa. The nature of the process of modernization and the political institutions that are emerging therefrom form the theme of the course. Such trends as the development of foreign policy in the context of the Cold War, the bases of insurgency, the emerging political role of military leaders and local communist parties are analyzed. Cadets have the opportunity to discuss these developing areas with citizens of the nations concerned and with other experts.

*2.5 Credit Hours.*



## DEPARTMENT OF TACTICS

*Commandant of Cadets:* BRIG. GEN. M. S. DAVISON.

*Aide-de-Camp:* 1ST LT. GLEN A. BLUMHARDT.

*Deputy Commandant:* COL. R. M. TARBOX.

*Brigade Staff:* S1: MAJ. R. L. HUNT; *Assistants:* MAJ. R. C. BREAKIRON, CAPT. R. P. HOY.

*Personnel Officer:* CWO R. A. SMITH; *Operations Officer:* MAJ. A. M. FOOTE, JR.; *Assistant:* MAJ. L. J. FLANAGAN (Ret.) (Inactive); S4: MAJ. T. U. HARROLD; *Assistant:* CAPT. R. D. SHIMUNEK; CAO: MAJ. M. R. THURMAN; *USNA LNO:* CAPT. D. H. GRANSBACK.

*First Regiment: Commanding Officer:* COL. R. M. TARBOX; *Executive Officer S3:* LT. COL. D. J. CRITTENBERGER, S1/S4: CAPT. C. S. STODTER; *Company Tactical Officers:* MAJ. W. A. ROSS, CAPT. W. H. WILCOX, CAPT. F. K. WARE, MAJ. F. C. ADAMS, JR., CAPT. B. J. CHANCE, CAPT. W. H. GILBERT, MAJ. H. B. RHYNE, MAJ. R. G. YERKS, CAPT. M. S. SISKIS, CAPT. T. G. WEAVER.

*Second Regiment: Commanding Officer:* COL. A. L. HAMBLIN, JR.; S1/S4: MAJ. R. C. TURNER; *Company Tactical Officers:* MAJ. W. H. RITTER, CAPT. T. L. MULLAN, JR., MAJ. E. E. FULLER, JR., CAPT. W. L. WEIHL, MAJ. C. S. MEEK, MAJ. J. G. WHITTED, CAPT. C. F. BLISS III, MAJ. R. A. CHENEY, CAPT. G. D. WATERS, MAJ. D. S. RICKARD, MAJ. R. E. GLASGOW.

*Office of Military Instruction: Director:* COL. WILLIAM J. RAY; *Assistant Director:* LT. COL. W. J. SCHUDER; *Plans O:* LT. COL. C. K. NULSEN; *Instructors:* MAJ. C. ALDERMAN, JR., MAJ. J. C. McCRAW, MAJ. F. J. SHERIFF, LT. COL. M. J. HANNA, MAJ. J. T. GRIFFIN, JR., MAJ. J. G. DONAHUE, MAJ. C. J. FIALA, MAJ. W. C. STINSON, JR., CAPT. R. L. HARGROVE.

### Mission:

1. To develop character exemplified by a strong sense of honor and high moral standards.
2. To instill a broad sense of duty and responsibility.
3. To provide a broad basic military education.
4. To develop the qualities and attributes of leadership.
5. To develop high standards of physical leadership.

Military instruction aims at indoctrination in the fundamental concepts of the science of tactics and provides study, practice, and orientation in the history, materiel, methods, and techniques of the various arms and services of the Armed Forces of the United States. With this basis the graduate has the foundation considered necessary for his progressive and continued development throughout a lifetime career as an officer of the Regular Army.

## Standard Courses

### FOURTH CLASS TACTICS

*Summer.* Basic military training in preparation for the military life. Orientation and indoctrination in duty and honor. This period in New Cadet Barracks is one of intensive fundamental military training to include qualification with the U.S. Army rifle and tactical training of the individual designed to prepare the new cadet to take his place in the Corps when it reassembles late in August.

*7.5 Weeks. Ungraded.*

#### *Academic Year*

#### TA 101

A continuation of military education to stress basic theory, instill pride in the profession of arms, and form the background to further military study through instruction in Military Heritage and fundamentals of military science.

*1.5 Credit Hours.*

#### TA 102

A continuation of military education to form the background to further military study through instruction in basic map reading and military hygiene.

*1 Credit Hour.*

### THIRD CLASS TACTICS

*Summer.* To familiarize each cadet with the weapons of the Infantry Battalion, with the organization, equipment, and capabilities of the Tank Company, Artillery Battery, Engineer Combat Company, and the Signal Company as part of a combined arms team supporting Infantry units; familiarize each cadet with the field-type operations of the supporting services; provide practical map reading exercises; rigorous exercises in day and night patrolling and physical confidence training; teach and maintain proper standards of appearance, discipline, and physical condition. Emphasis is on practical application.

*7.5 Weeks. Ungraded.*

#### *Academic Year*

#### TA 201

Education of a more advanced nature to introduce the tactical principles of offense and defense emphasizing the combined arms aspects, orientation and logistical support and principles, capabilities

of the Soviet Army, and a review of the position of the Armed Forces in the National Military Establishment.

*1 Credit Hour.*

## TA 202

A course to further the understanding of Military Heritage of the Armed Forces.

*0.5 Credit Hour.*

## SECOND CLASS TACTICS

*Summer.* (1) A period of  $2\frac{1}{2}$  weeks devoted to an orientation trip to U.S. Army Signal Center, Fort Monmouth, and to advanced map problems, methods of instruction, orientation in Air Defense, Air Force, Naval Operations, and physical education.

(2) One month duty as platoon leaders with combat units of U.S. Army Europe (7th Army), or as squad leaders during New Cadet Barracks.

*Ungraded.*

## *Academic Year*

## TA 300

A single course of a full year's duration consisting of tactical instruction stressing the combat organization of, and support available to, the reinforced battalion; basic principles of its employment in a combat role using tactical situations in the attack, the assault of a river line; implications of nuclear weapons; and logistical problems of a combined arms team.

*2.5 Credit Hours.*

## FIRST CLASS TACTICS

*Summer.* (1) Orientation trip to U.S. Army Armor Center at Fort Knox, Ky.; Artillery and Missile Center at Fort Sill, Okla.; Air Defense Center at Fort Bliss, Tex.; Engineer Center at Fort Belvoir, Va.; and Infantry Center at Fort Benning, Ga.

*$2\frac{1}{2}$  Weeks.*

(2) One month duty either as (a) platoon leaders with combat units of U.S. Army Europe (7th Army) for cadets who did not receive this type training in Second Class Year, or (b) leaders at command and staff levels during New Cadet Barracks or Camp Buckner.

*Ungraded.*

## *Academic Year*

TA 400

A single course of a full year's duration consisting of instruction in responsibilities of junior officers; instruction in current, large scale military problems; preparation of a 2,500-3,000 word staff study on a selected military topic; review and summary of military fundamentals.

*1.5 Credit Hours.*

### **Military Psychology and Leadership**

*Director:* COL. A. P. HAUSER.

*Associate Director:* LT. COL. H. A. BUCKLEY.

*Assistant Directors:* MAJS. J. R. JENNINGS, W. N. THOMAS.

*Instructors:* LT. COL. R. W. LITTLE; MAJS. W. C. MAUS, W. J. LIVSEY; CAPTS. J. H. ANDERSON, R. F. ANTHIS, R. C. BAUGHMAN, J. P. BERGEN, S. M. DRISKO, I. G. KATENBRINK, JR., D. M. MALONE, E. B. WILSON, C. R. RUSSELL.

### **Standard Courses**

#### **PL 202. INTRODUCTION TO PSYCHOLOGY**

A course of study designed to teach the cadet the basic principles and concepts of General Psychology and their relation to him as a student and in his future role of military leader. The broad areas of the science of psychology, human development and individual differences, perceiving, learning, thinking, motivation and emotion, adjustment and social relationships and leadership theory, comprise the course content.

*2.5 Credit Hours.*

#### **PL 401. MILITARY LEADERSHIP**

A study of leadership as a phenomenon of human behavior, including consideration of some of the factors which affect this phenomenon in the military and the process involved in the execution of leadership by military commanders.

The course is structured on a concept of leadership which encompasses moral, philosophical, and scientific foundations and which views leadership as a dynamic interaction process involving the leader himself (with his own personality), the group (with its particular characteristics and needs), and the situation (in which the leader and his group are operating).

As a vehicle for understanding and internalizing concepts developed in the course, the cadet is required to analyze typical military leadership problems which require an appreciation of human behavior and



group dynamics as well as knowledge of specific functions of military management and personnel management.

In the classroom exercises the principal instructional techniques used are: Role Playing, Group Discussion, Training Films, Tape Recorded Skits, and Case Studies.

*2.5 Credit Hours.*

## METHODS OF INSTRUCTION

### *Third Class*

A training course in the personal and professional qualifications required of a military instructor. Emphasis is placed on practical application in supervised presentations by each cadet of a military lesson, critiques, impromptu presentations and a 30-minute outdoor class on a military skill. Included are theoretical instruction and practical application of the principles of learning and training methods. This involves preparation, presentation, communication of information and skills, purposes and types of examinations, conduct of critiques, management and supervision of instruction and selection and design of training aids.

## Elective Courses

PL 481. HUMAN RELATIONS: MANAGERIAL PSYCHOLOGY (*Second term*)

Prerequisite: PL 202.

A course of study of selected problems, designs and results of research within the organizational setting to include motivation, morale, selection, counseling, development, and human engineering. Emphasis is given to the scientific method as applied in the behavioral sciences and the implications of these research findings within the military service or industry.

*2.5 Credit Hours.*

PL 482. SOCIOLOGY (*First term*)

Prerequisite: PL 202.

American society is studied from the viewpoints of sociology and anthropology with special reference to military applications for future officers. The primary institutions—social, political, and economic—are examined. Dynamic elements such as public opinion, mass movements, and social change are presented. The cultures of a small contemporary society (Thailand) and of a non-literate society (the Siuai of Bougainville) are compared. Individual cadet projects

require the application of sociological concepts to selected aspects of Academy life.

### *2.5 Credit Hours.*

## **Physical Education**

*Professor and Director:* COL. F. J. KOBES, JR.

*Deputy Director:* LT. COL. T. A. WARE, JR.

*Associate Directors:* DR. L. O. APPLETON, DR. A. C. WERNER, MR. R. M. BRUCE, MR. J. B. KRESS, MR. R. E. SORGE.

*Assistant Directors:* MESSRS. L. A. ALITZ, H. J. KROETEN, T. E. MALONEY, J. M. PALONE, W. F. LEWIS, G. W. LINCK.

*Instructors:* MAJS. E. L. KEESLING, CAPTS. J. L. HUTCHISON, P. W. LASH, F. S. LINDSEY, J. P. PERLOW, E. L. TROBAUGH, A. F. UNDERWOOD, G. E. VANVALKENBURG; MR. J. K. PIERSON.

## **Standard Courses**

### **PE 101-102. PHYSICAL DEVELOPMENT AND ATHLETIC PARTICIPATION**

Instruction designed to develop personal requisites for military effectiveness, the basic elements underlying physical ability (strength, muscular endurance, power, coordination, agility, balance, and flexibility), individual physical ability skills, and to enhance mental health and efficiency. These aims are accomplished through instruction in gymnastics (apparatus), boxing, wrestling, and swimming. Instruction and participation in the sports of handball and squash for those individual cadets who demonstrate a superior level of achievement at midcourse.

Player competition in intercollegiate sports of cross country, football, soccer, and 150-pound football; winter intercollegiate sports of hockey, pistol, rifle, squash, swimming, track, wrestling, basketball, and gymnastics.

Apart from intercollegiate athletics, the intramural athletic program provides player competition in the fall sports of football, soccer, golf, tennis, track, and triathlon; winter sports of basketball, boxing, handball, squash, volleyball, skiing, wrestling, and water polo. For nonintercollegiate contenders, the intramural program provides a broad sports background while conditioning and teaching basic athletic skills. Participation is restricted to two seasons for a particular sport.

*3 Credit Hours (1.5 each term).*

## PE 201-202. ORIENTATION IN ATHLETIC SKILLS AND INSTRUCTOR TRAINING

Instruction designed to foster carryover athletic skills which will insure fitness in later years through the development and application of advanced physical skills and expansion of the repertory of individual and team sports to include basketball, handball, volleyball, squash, skiing, golf, tennis, and personal conditioning.

Instructions and application in methods and techniques of conducting military conditioning exercises and allied physical training activities.

Athletic participation, as listed under PE 101-102.

*1.5 Credit Hours* (1 first term, 0.5 second term).

## PE 301-302. DEVELOPMENT OF ATHLETIC SKILLS

Emphasis is placed on further expansion of the individual repertory of individual and team sports to include squash, handball, volleyball, scuba, or personal conditioning; increased emphasis on carryover athletic skills which promote fitness.

Advance instructions and application in methods and techniques of conducting military conditioning exercises.

Athletic participation as listed under PE 101-102. Responsibilities as assistant coach or official in the intramural program.

*1.5 Credit Hours* (0.5 first term, 1 second term).

## PE 401-402. LEADERSHIP AND ADVANCED ATHLETIC SKILLS.

Emphasis is placed on instructor and leadership training through administration of third and fourth class summer physical training programs.

Instruction for further expansion of the individual repertory of individual and team sports to include golf, tennis, squash, handball, volleyball, and personal conditioning; increased emphasis on carryover athletic skills which promote fitness.

Athletic participation, as listed under PE 101-102. Responsibilities of administering, coaching, and officiating in the intramural program.

*1 Credit Hour* (0.5 each term).





Plebe Boxing



Skiing at West Point



## **Additional Courses**

A special program of weight control and reconditioning, basic swimming, voluntary conditioning, and a posture clinic to assist those who experience difficulty in achieving minimum standards of proficiency. Open to all classes.

*Ungraded.*

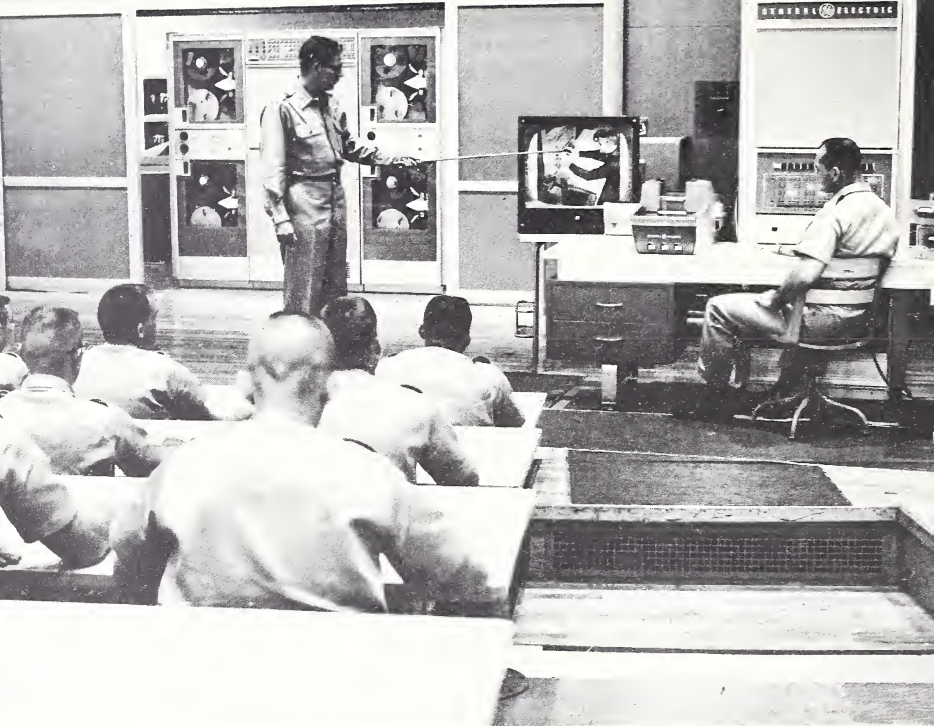
### *Spring Athletic Participation*

With the same objectives as stated in PE 101-102, the spring program offers player competition in intercollegiate sports of baseball, lacrosse, golf, tennis, track, pistol, and rifle, or voluntary competition in the spring intramural program consisting of military boating, cross country, lacrosse, softball, and tennis. Approximately 89 percent of the Cadet Corps participates in this program.

*Ungraded.*

### *Annual Physical Fitness Tests*

Physical Fitness Tests and Physical Ability Tests, including Obstacle Course Runs, conducted in fall and spring of each year for all cadets. Graded under PE 101-102, 201-202, 301-302, and 401-402.



Academic Computer Center

## ACADEMIC COMPUTER CENTER

*Director and Permanent Associate Professor of Computer Science:* MAJ. W. F. LUEBBERT.

*Assistant Director for Operations and Administration:* CAPT. H. C. HANNAWAY.

*Assistant Director for Academic Instruction and Systems:* MAJ. H. C. HOLLANDER.

*Computer Science Instructor:* CAPT. F. E. O'BRIEN.

Every cadet receives computer science instruction taught in an integrated sequence by several departments. In his Engineering Fundamentals freshman course given by the Department of Earth, Space and Graphic Sciences, he learns to program and solve problems using a computer. Basic computer knowledge is extended through continued computer use in several disciplines. The Department of Mathematics requires at least five problems be solved on the computer each year. The Department of Physics and Chemistry uses the computer as a data reduction tool. The Department of Ordnance permits comparison of analog and digital computer solutions in its Ordnance Engineering and Management courses. The Departments of Electricity, Mechanics, and Military Art and Engineering encourage cadet computer use. Several elective courses allow cadets with particular aptitude, skill and desire to explore computer science in depth.

The use of the computer is beginning to extend into areas outside of the sciences, such as in psychology, tactics, and social sciences. For example, computer-trained cadets recently programmed judge selection procedure and selection and matching of teams for the National Debate Tournament held annually at West Point.

The academic computer center stands at the heart of this program by integrating, coordinating and providing computer science support for the Military Academy. It trains instructors, assists academic departments in the conduct of instruction, provides instructor support and augmentation, conducts classes or subcourses within courses presented by academic departments, conducts special voluntary and honors courses, and supervises individual projects and monographs.

Currently over 3,000-cadet computer program solutions are processed each month, with the number rising rapidly. The computer is available to cadets for homework assignments, special projects, monographs, honors work, or for free experimentation. Cadets who desire to personally operate the equipment may qualify for a "gray card" (qualified apprentice) or a "gold card" (fully qualified oper-

ator). Cadets earning a "gold card" use the computer even when the Computer Center is officially closed and members of the staff are not present.

To help cadets prepare computer programs during their barracks study time, a small program library is available in each cadet company and a larger program library in each battalion. Cadets normally use the comprehensive library and programming consultative services available at the Computer Center.

The Computer Center instructional facilities include a 200-seat hall in which computer problem solutions may be demonstrated. Closed-circuit television, kinescope films and a wide variety of audio-visual aids increase instruction efficiency. Special peripheral devices such as a curve plotter and punched card equipment assist in the dynamic presentation of material to students.



## ACTIVITIES AND SOCIAL LIFE

Contrary to popular opinion, cadets do not spend all their time parading, attending classes, and studying. There are many opportunities for social and recreational activities.

During the summer there is swimming and picnicking at Delafield Pond and Camp Buckner, and picnicking at Constitution Island. Picturesque Flirtation Walk winds for three-quarters of a mile along the majestic Hudson, offering a peaceful and shady retreat from the walls of barracks. Cadets stationed at Camp Buckner during the summer months of Yearling Year enjoy swimming, canoeing, fishing, skeet, water skiing, and sailing. In the fall the Corps takes one or more football trips to metropolitan areas where the bright lights are a welcome diversion. During the winter months, ice skating at Smith Rink and skiing on the post at the Constant Ski Slope are extremely popular. The T-bar ski tow, snow-making machine, and ski trails are probably among the finest ski facilities on any campus in America. Throughout the academic year, frequent hops are held in either the gymnasium or Cullum Hall and movies are shown in the Army Theater. Prominent entertainers and programs are frequently brought to the Academy for performances.

In addition to general recreational activities, there are 59 organized extracurricular activities. Student government type activities are the Honor Committee, Class Committees, and the Ring and Crest Committees in each Class.

Those cadets who like music and acting are encouraged to utilize their talents in the Dialectic Society, Dance Band, and the nationally famous Cadet Glee Club. For those interested in radio broadcasting there is the KDET Station with a fully equipped radio broadcasting station. The Cadet Protestant, Catholic, and Jewish Choirs sing at religious services on the post and usually make several appearances outside the Academy each year. The One Hundredth Night Show, the time-honored dramatic highlight presented annually by the Dialectic Society celebrating the one hundredth night before graduation, is written and produced solely by cadets.

Hobbyists find relaxation as well as opportunities to test and improve their skills as members of the Art, Camera, Bridge, Chess, Outdoor Sportsmen's, and Model Builders' Clubs.



Cadet Dance in Cullum Hall



Delafield Pond

Those who are interested in literary activities may seek outlets for their talents in *The Howitzer*, yearbook for the Corps of Cadets; *The Pointer*, the monthly magazine of the Corps of Cadets; and *Bugle Notes*, the cadet handbook more commonly known as the "Plebe Bible." Cadet press representatives conduct interviews and prepare hundreds of releases for hometown newspapers.

For those who want to explore fields of academic study on a broader or more intensive basis than is provided in the academic curriculum, there are the Mathematics Forum, five language clubs, Astronomy, Audio, and Rocket Clubs, and one of the largest and most active organizations at the Military Academy, the West Point Debate Council and Forum.

To round out the great variety of opportunities for recreation, there are those clubs which compete with other colleges. These include the Handball, Pistol, Rifle, Fencing, Sailing, Skeet, Ski, Water Polo, Judo, Triathlon, Rugby, and Sky Diving Clubs.

Organized extracurricular activities are directed and administered almost entirely by the cadets themselves, subject to the approval of the Superintendent. There is an officer in charge of each activity, who acts in an advisory capacity. From these activities, cadets acquire a wealth of knowledge or develop latent talent which subsequently will serve them well and be a source of pleasure in their careers as Army officers.

There are a number of large, well-equipped cadet reception rooms and lounges for cadets and their guests. Some have fully equipped snack bars, TV rooms, game rooms, and are normally open on weekends and holidays throughout the year. In addition, there are three Cadet Hostesses available to help plan the social and recreational programs for the Corps of Cadets. The Hostesses also provide assistance to cadets in obtaining accommodations for their guests during the year.



## 1964 ARMY FOOTBALL SCHEDULE

- 19 September — The Citadel at West Point  
26 September — Boston College at West Point  
3 October — University of Texas at Austin  
10 October — Pennsylvania State University at West Point  
17 October — University of Virginia at Charlottesville  
24 October — Duke University at West Point  
31 October — Iowa State University at West Point  
7 November — Syracuse University at New York City  
14 November — University of Pittsburgh at West Point  
28 November — Navy at Philadelphia





## INTERCOLLEGIATE ATHLETICS

*Athletic Board:* COL. ELVIN R. HEIBERG (Chairman), BRIG. GEN. MICHAEL S. DAVISON, COL. JOHN R. JANNARONE, COL. FRANK J. KOBES, JR., COL. RAYMOND P. MURPHY (Secretary).

*Director of Athletics:* COL. RAYMOND P. MURPHY.

*Coaches.* Baseball and 150-pound Football, ERIC TIPTON. Basketball, TAYLOR LOCKE. Cross Country and Track, CARLETON CROWELL. Football, PAUL F. DIETZEL. Assistants, GEORGE J. TERRY, WILLIAM A. SHALOSKY, LARRY B. JONES, TAD SCHROEDER, THOMAS B. CAHILL, CHARLES L. KLAUSING, JAMES J. VALEK. Golf, WALTER R. BROWNE. Gymnastics, THOMAS E. MALONEY. Hockey, JOHN P. RILEY. Lacrosse, JAMES F. ADAMS. Pistol, M/Sgt. HERBERT ROBERTS, JR. Rifle, M/Sgt. ALFRED O'NEILL. Soccer, JOSEPH PALONE. Squash and Tennis, WILLIAM C. B. CULLEN. Swimming, JOHN E. RYAN, JR. Wrestling, LEROY ALITZ.

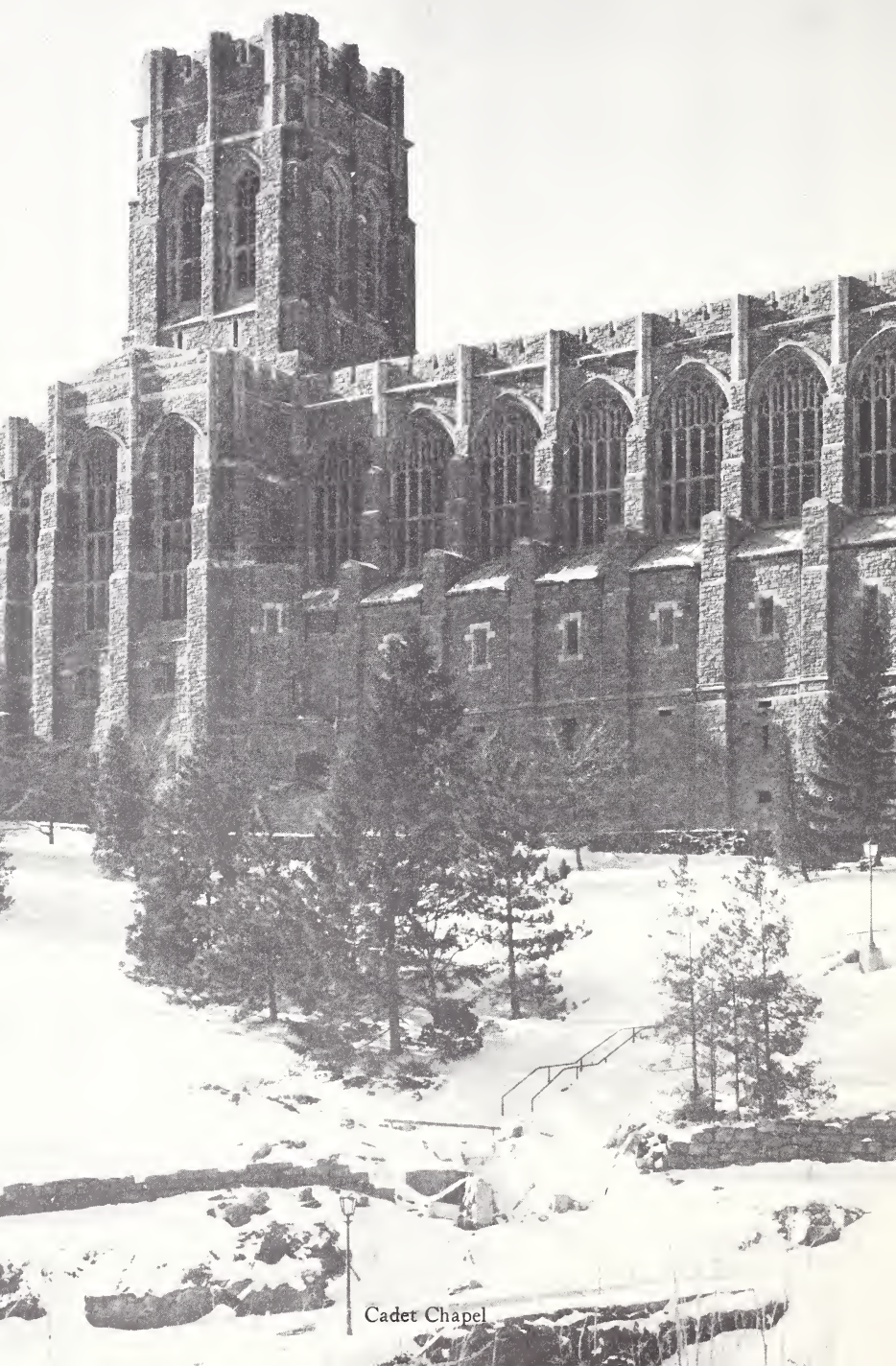
*Staff:* Trainer, ED PILLINGS. Information, FRANK WALTER.

Intercollegiate athletics are supervised by the Athletic Board, which is appointed by and is directly responsible to the Superintendent. The intercollegiate athletic program is financed by the Army Athletic Association, a self-supporting and nonprofit organization consisting of approximately 12,000 graduates of the Military Academy. No Government funds are appropriated for equipment, maintenance, and operation of the vast intercollegiate athletic plant.

A total of 17 sports are included in a complex schedule that keeps nearly half of the Corps of Cadets actively engaged in competitive sports throughout the academic year. These sports are football (including 150-pound football), soccer, and cross country in the fall; basketball, indoor track, wrestling, swimming, gymnastics, hockey, rifle, pistol, and squash in the winter; and baseball, lacrosse, track, tennis, and golf in the spring.

Realizing the value of athletics to the Army, General Douglas MacArthur, who was Superintendent shortly after World War I, reorganized and strengthened the athletic system. "The training of the athletic field which," General MacArthur said, "produces in a superlative degree the attributes of fortitude, self-control, resolution, courage, mental agility and, of course, physical development, is one completely fundamental to an efficient soldiery."

Former President Dwight D. Eisenhower and Generals Omar N. Bradley and James A. Van Fleet are among the many distinguished wearers of the Army "A."



Cadet Chapel

## RELIGION

All cadets are provided a sound basic religious atmosphere. Each cadet must attend one of the weekly chapel services—Protestant, Catholic, or Jewish.

### Protestant

Protestant services are held in the Cadet Chapel every Sunday during the academic year and out-of-doors during the summer months. The Reverend Theodore C. Speers, D.D., is the Chaplain, USMA, and is assisted by The Reverend James D. Ford. Mr. John A. Davis, Jr., is Organist and Choirmaster, USMA. The two regiments alternate in their attendance at the 8:50 and 11 a.m. services. Denominational Services of Holy Communion are conducted each Sunday in St. Martin's Chapel according to the rites of the Episcopal, Lutheran, Presbyterian and Orthodox Churches. At the morning Worship Service the form of worship is nondenominational in character. Among the religious activities in which cadets take part are the Cadet Chapel Choir of 175 voices; the West Point Sunday School of 700 children of the Post taught entirely by 150 cadet teachers; the Cadet Chapel Acolytes; and a program of Morning Devotions, conducted every weekday at 6:30 a.m. in Mahan Hall.

### Catholic

Catholic cadets attend Holy Trinity Chapel, the Catholic Chapel on the Post. The Right Reverend Monsignor Joseph P. Moore is the Rector, and is assisted by The Reverend Robert F. McCormick. Catholic members of the two cadet regiments alternate in attending the 8 and 10:30 a.m. Masses to facilitate frequent reception of Holy Communion and to give opportunity for assisting at High Masses. The 10:30 a.m. Mass each Sunday is a Missa Cantata. A cadet Catholic choir sings at the High Masses and other liturgical ceremonies. Daily Mass is celebrated at 6:20 and 7 a.m. throughout the academic year. Confessions are heard on Saturday, daily at Mass times, and as desired. A cadet Cardinal Newman Forum meets each week. By means of lectures, instructions and seminars, it treats of religion, morals, and philosophy.



## Jewish

Jewish worship services are held in the Old Cadet Chapel every Sunday at 8:30 a.m. during both the academic year and the summer season. Rabbi Avraham Soltes is the Jewish Chaplain. High Holy Day Services are held for the cadets at Temple Sharey Tefilo, East Orange, N.J. where the Jewish Chaplain serves as Spiritual Leader. Festival Services are conducted in the Old Cadet Chapel and a special passover service is held yearly at the U.S. Hotel Thayer. The Jewish Chapel Choir sings the Liturgical music at every service. The Jewish cadets also participate in the reading of the Liturgy and in the Torah service. Religious instruction for Post children of the Jewish faith is conducted by cadets on Sunday morning.





## LECTURE PROGRAM 1963-1964

Lectures sponsored by the various activities at the Military Academy are supervised by the Dean of the Academic Board. In almost every case the lecture is an integral part of the course of instruction of the attending class or classes (shown in parentheses).

A list of the visiting lecturers for the academic year 1963-1964 is shown below:

### DEPARTMENT OF EARTH, SPACE, AND GRAPHIC SCIENCES

DR. JOHN H. HELLER, Director of New England Institute for Medicine and Research, Ridgefield, Conn., "Man's Exploration of Space" (Fourth)

### DEPARTMENT OF ELECTRICITY

DR. WALTER R. BEAM, Head, Department of Electrical Engineering, Rensselaer Polytechnic Institute, "Micro-Electronics: The Thin Film Approach" (Second)

DR. ALVIN M. WEINBERG, Director, Oak Ridge National Laboratory, "Nuclear Research and National Policy" (Second)

COL. ROBERT C. BARTHLE, U.S. Satellite Communications Agency, Ft. Monmouth, N.J., "Space Communication" (Second)

### DEPARTMENT OF ENGLISH

MR. CORNELIUS RYAN, Author, Ridgefield, Conn., "Literature and the Soldier" (Third and Fourth)

MR. SET MARDIROSIAN, Visiting Research Associate, Princeton Center of International Relations, "Koestler's *Darkness at Noon*" (First)

MAJ. GEN. CHARLES E. SALTZMAN (USAR), Partner, Goldman, Sachs and Co., New York City, "The Role of the Military in Shaping U.S. Affairs" (Fourth)

### DEPARTMENT OF FOREIGN LANGUAGES

COMMANDER KARL H. PETER, Instructor of German, USNA, Annapolis, Md., "Das Attentat auf Hitler am 20 Juli 1944" (Third-German)

DR. GUIDO BRUNNER, Second Secretary, German Observer Group to the U.N., "Deutsche Schriftsteller der Gegenwart" (Third-German)

MR. PIERRE BRODIN, Director, Lycée Français de New York, "Le système d'éducation français" (Third-French)

DR. DANIEL P. GIRARD, Professor of French, Teachers College, Columbia University, New York City, "La France à vol d'oiseau" (Third-French)

MR. NICHOLAS FERSEN, Instructor of Russian, Williams College, Williamstown, Mass., "The Vlassov Movement" (Third-Russian)

#### DEPARTMENT OF LAW

MAJ. GEN. CHARLES L. DECKER, The Judge Advocate General, USA, "Military Law and Leadership" (Second)

HIS EXCELLENCY ABDUL HAK KEMAL YORUK, Minister of Justice, Republic of Turkey, "International Aspects of United States Army Commitments" (Second)

PROF. WILLIAM T. MALLISON, JR., Professor of Law, George Washington School of Law, Washington, D.C., "The Law of War: Sanctions and Enforcement" (First)

COL. JOHN F. T. MURRAY, Commandant, The Judge Advocate General's School, U.S. Army, Charlottesville, Va., "The Legal Aspects of Counterinsurgency" (Second and Selected First Classmen)

#### DEPARTMENT OF MECHANICS

MR. NEIL MACCOULL, Retired (formerly Consulting Engineer, Texaco Research Center, Beacon, N.Y.), "The Practical Thermodynamics of the Automobile" (Second)

DR. EDWARD F. BYARS, Professor and Chairman, Department of Theoretical and Applied Mechanics, West Virginia University, Morgantown, "Mechanics of Materials in Everyday Life" (Second)

DR. J. J. CORNISH III, Head, Aerophysics Department, Mississippi State University, "Low Speed Aerodynamics" (Second)

PROF. J. P. DEN HARTOG, Professor of Mechanical Engineering, Massachusetts Institute of Technology, "Mechanical Vibrations" (Second)

MAJ. FRANK BORMAN, NASA, Manned Space Craft Center, Houston, Tex., "American Manned Lunar Landing Program" (Second)

#### DEPARTMENT OF ORDNANCE

DR. WILLIAM F. LORANGER, Technical Director, Picker X-Ray Corp., White Plains, N.Y., "Electron Microscopy" (Selected First Classmen)

- DR. JOSEPH SPERRAZZA, Chief, Terminal Ballistics Laboratory, Ballistics Research Laboratories, Aberdeen Proving Ground, Md., "Wound Ballistics" (Selected First Classmen)
- DR. WILLIAM R. LUCAS, Chief, Engineering Materials Branch, Propulsion and Space Vehicles Division, Marshall Space Flight Center, Huntsville, Ala., "Engineering Materials for Space Use" (First)
- DR. ALEXANDER HAMMER, Springfield Armory, Springfield, Mass., "Weapons Systems Engineering" (First)
- MR. HAROLD STRATTON, Engineer, Rocketdyne Division, North American Aviation, Canoga Park, Calif., "Liquid Rocket Engines" (Selected First Classmen)
- MR. SAMUEL FORTER, Assistant to the Director, Instrumentation Laboratory, Massachusetts Institute of Technology, Cambridge, Mass., "Inertial Guidance Systems" (Selected First Classmen)

#### DEPARTMENT OF SOCIAL SCIENCES

- PROF. PHILIP MOSELY, Columbia University, "Political and Strategic Implications of European Integration in the 1960's" (First)
- PROF. STEPHEN LUKASHEVICH, University of Delaware, "The Transformation of Russian Society in the Reign of Nicholas I" (Selected First and Second Classmen)
- MAJ. GEN. A. J. GOODPASTER, Special Assistant to the Chairman of the Joint Chiefs of Staff, "Military Force as an Instrument of Policy" (Selected First and Second Classmen)
- PROF. SAMUEL GONARD, Graduate Institute of International Studies, Geneva, Switzerland, "Strategy Reflections" (First)
- DR. VERNON ASPATURIAN, Department of Political Science, University of Delaware, "The Soviet Union Today and Tomorrow" (First)
- PROF. LOREN R. GRAHAM, Indiana University, "Soviet Science in the Nuclear Age" (Selected First and Second Classmen)
- HON. CLARENCE D. LONG, Representative, 2d District, Maryland, "Labor Supply, Full Employment and Inflation" (Second)
- PROF. CHARLES FRANKEL, Department of Philosophy, Columbia University, "Democratization in Japan" (First)
- PROF. ROBERT E. OSGOOD, School of Advanced International Studies, The Johns Hopkins University, "Limited War" (Selected First and Second Classmen)
- MR. AVERELL HARRIMAN, Deputy Undersecretary of State for Political Affairs, "National Security Policy of the U.S.: The Problems of the Developing Nations" (First and Second)

- HON. ROBERT V. ROOSA, Undersecretary of the Treasury for Monetary Affairs, "Fiscal and Monetary Policy for Economic Stability" (Second)
- MR. WILLIAM C. SULLIVAN, Federal Bureau of Investigation, "Communism in the U.S." (Second)
- PROF. WARNER SCHILLING, Columbia University, "The Search for a Stable Deterrent" (Selected First Classmen)
- PROF. HENRY KISSINGER, Harvard University, "Changing Nature of National Security" (First)
- PROF. RICHARD E. NEUSTADT, Columbia University, "The Presidency" (Second)
- LT. COL. WILLIAM Y. SMITH, USAF, Office of the Chairman, Joint Chiefs of Staff, "Political Military Coordination" (Selected First Classmen)
- PROF. ARTHUR P. WHITAKER, History Department, University of Pennsylvania, "Revolutionary Nationalism in Latin America" (Selected First Classmen)
- PROF. LOUIS HARTZ, Harvard University, "The Enlightenment" (Selected Second Classmen)
- PROF. LINCOLN BLOOMFIELD, Center of International Studies, MIT, "The United Nations" (First)
- MR. JACK STOCKFISH, Deputy Secretary, U.S. Treasury, "Systems Analysis and Defense Decisions" (Second)
- MAJ. GEN. SAM GRIFFITH, USMC, "Chinese Communist Military Policy" (First)
- DR. HANS KOHN, Professor Emeritus, C.C.N.Y., "Nationalism in the 20th Century" (Third)
- DR. ALAIN C. ENTHOVEN, Deputy Assistant Secretary of Defense (Systems Analysis), "Making Decisions in the Department of Defense" (Selected First Classmen)
- PROF. W. EMERSON, Yale University, "Military Force as an Instrument of Policy" (First)
- PROF. CARL KAYSEN, Harvard University, "New Aspects of the Role of the Professional Military Officer" and "The Role of the Professional Military Officer" (Selected First and Second Classmen)
- PROF. SAMUEL P. HUNTINGTON, Harvard University, "The Military Role in Defense Decision Making" (Selected First and Second Classmen)
- MR. JOHN J. POWERS, JR., Chairman, Pfizer International, Inc., "The Role of American Business in Underdeveloped Countries" (Second)



- HONORABLE S. K. ROY, Consul General of the Republic of India, "India's Problems and Prospects" (First)
- LADY BARBARA WARD JACKSON, Radcliffe Graduate Center, Cambridge, Mass., "International Relations in a Changing World" (First)
- PROF. CLINTON ROSSITER, Cornell University, "American Conservatism" (Selected Second Classmen)
- PROF. HENRY GRAFF, Chairman, Department of History, Columbia University, "Decade of American Diplomacy, 1945-1955" (Third)

#### DEPARTMENT OF TACTICS

- MAJ. GEN. ALVIN R. FITCH, Assistant Chief of Staff for Intelligence, "Mission and Capabilities of the Intelligence and Security Branch" (First)
- COL. CHARLES I. BENNETT, USAF, Deputy Director for War Plans, "U.S. Striking Forces—U.S. Air Force" (Third)
- CAPT. G. MACRI, USN, Strike Forces Division, Chief Naval Operations, "The U.S. Navy's Role in the U.S. Striking Forces" (Third)
- LT. COL. JAY D. CARPENTER, Troop Operations Division, DCSOPS, Washington, D.C., "Strategic Mobility of U.S. Forces" (Third) and "World Wide Deployment of U.S. Army Combat Units" (First)
- COL. THOMAS H. MULLER, Chief, Technical and Industrial Liaison Office, DA, "Material Development Program—Weapons Systems and Logistics" (First)
- MAJ. W. H. PATTERSON, Office of the Director of Foreign Intelligence, ACSI, DA, "Soviet Trends" (First)
- COL. BALERINO, Philippine Army, retired, "Counter guerrilla Operations in the Philippines" (Selected First Classmen)
- MAJ. T. B. DERAMUS AND MAJ. F. MCGREGOR, Special Forces, Special Weapons Center, Ft. Bragg, N.C., "Special Forces and Counterinsurgency Orientation" (Third)
- COL. D. H. RICHARDS, MAP Division, DCSLOG, DA, "Military Assistance Program" (First)
- LT. COL. C. H. DUBSKY, Office of DCS Unit Training, CONARC, "U.S. Army Contingency Tasks" (First)
- MAJ. GEN. ARTHUR S. COLLINS, Chief, OPD, "Officer Assignment and Career Plan" (First)
- COL. G. S. BLANCHARD, Director of Special Warfare, DCSOPS, "U.S. Army Cold War Operations" (First)

COL. R. L. CLUTTERBUCK, British Liaison Officer, C&GSC, Ft. Leavenworth, Kans., "British Counter guerrilla Operations in Malaya" (First and Second)

CAPT. NICHOLAS S. H. KRAWCIW, Ft. Knox, Ky., "The Challenge of the Profession of Arms" (Fourth)

LT. COL. EDWARD McC. DANNEMILLER, Deputy Director of the Counterinsurgency Department, U.S. Army Special Warfare School, Ft. Bragg, N.C., "Counterinsurgency Operations in Kenya" (First)

### **OFFICE OF MILITARY PSYCHOLOGY AND LEADERSHIP**

MAJ. GEN. E. B. SEBREE (USA, Retired), U.S. Army Leadership Human Research Unit, U.S. Continental Army Command, Presidio of Monterey, Calif., "Leadership Styles" (First)

DR. LEE H. BRISTOL, JR., President, Westminster Choir College, Princeton, N.J., "Creativity in Management" (First)

LT. COL. WILLIAM TATSCH, Faculty, U.S. Army Management School, Ft. Belvoir, Va., "Military Management" (First)

LT. GEN. FRANK S. BESSON, Commanding General, U.S. Army Materiel Command, Washington, D.C., "Management in the Military" (First)

MR. JOHN J. MCCARTHY, Personnel Consultant, General Electric Company, New York City, "Personnel Management" (First)

DR. CHRIS ARGYRIS, Professor of Industrial Administration, Yale University, "Man in Organization" (First)

LT. GEN. WILLIAM C. WESTMORELAND, Commanding General, XVIII Airborne Corps, Ft. Bragg, N.C., "The Leadership Challenge" (First)

### **FACULTY LECTURES**

DR. ALVIN C. EURICH, Executive Director, Education Division, The Ford Foundation, and Director of the Fund for the Advancement of Education, "Higher Education in the 21st Century"

PROF. CHARLES A. DESOER, Professor of Electrical Engineering, University of California, Berkeley, "Increasing Influence of Linear Algebra in Undergraduate Engineering Curriculum" (Faculty of Departments of Electricity and Mathematics)

## EDUCATIONAL ACTIVITIES

The Military Academy offers varied opportunities for cadets who are interested in exploring fields of academic study on a broader or more intensive basis than is provided in the formal academic curriculum. Seminars, special guest lectures, discussion groups, student conferences, and intercollegiate debates are undertaken on cadet initiative and carried out primarily with cadet effort. The largest and most active organization in this field is the Debate Council and Forum whose members engage in intercollegiate debates and discussions in all parts of the United States during the academic year. This organization also sponsors voluntary seminars on public affairs topics in which cadets express interest.

### **Student Conference on United States Affairs**

Annually since 1949, West Point, with the assistance of private financial aid, has sponsored a Student Conference on United States Affairs, known as SCUSA. Outstanding students from about 90 United States and Canadian colleges and universities gather for a 4-day conference in early December with approximately 35 senior individuals from college faculties, business, and government. Meeting in small seminars, the participants discuss major aspects of U.S. National Security Policy and formulate policy recommendations. The Cadet Debate Council and Forum administers these conferences and acts as host. In addition to the cadets on the administrative staff and those actually participating in conference discussions, the first and second classes of the Military Academy attend the opening conference speech.

The purposes of these conferences are (1) to produce an informative examination and discussion of U.S. National Security Policy, (2) to provide an outstanding representation of college students with an appreciation of the complexities of government policy formulation, and (3) to broaden students' contacts with their contemporaries in an academic endeavor.

The principal speakers at the 12th through the 15th conferences are given below:





His Royal Highness Prince Bernhard of Netherlands  
visits SCUSA XV discussion (Center Rear)



Student Conference on United States Affairs



SCUSA XII: 30 November–3 December 1960

THE HONORABLE NELSON A. ROCKEFELLER

Governor of the State of New York

THE HONORABLE DEAN RUSK

Former President of the Rockefeller Foundation

Secretary of State

SCUSA XIII: 6–9 December 1961

THE HONORABLE JOHN J. MCCLOY

Former High Commissioner in Germany, Assistant Secretary of War, President of the World Bank, and Disarmament Advisor to the President

THE HONORABLE GEORGE C. MCGHEE

Under Secretary of State for Political Affairs

SCUSA XIV: 5–8 December 1962

THE HONORABLE DEAN ACHESON

Former Secretary of State

HONORABLE ALLEN W. DULLES

Former Director of the Central Intelligence Agency

SCUSA XV: 4–7 December 1963

THE HONORABLE W. AVERELL HARRIMAN

Under Secretary of State for Political Affairs

HIS ROYAL HIGHNESS BERNHARD, Prince of the Netherlands

**The National Debate Tournament**

Annually, since 1947, the Debate Council and Forum has sponsored the National Debate Tournament which marks the culmination of national intercollegiate forensic activities for the academic year. For administrative purposes the United States is divided into eight debating districts, each headed by a chairman and a district committee. During the debating season approximately 600 colleges and universities compete within their respective districts in order to win 1 of 36 invitations to the national tournament held at West Point each spring.

After 2 days of seeding and semifinal rounds, two teams are selected to compete for the championship. The winner is awarded the Larmon Trophy, donated by Mr. Sigurd S. Larmon of Young and Rubicam, Inc., New York City. More than 150 teams, representing colleges

and universities from all sections of the United States, have competed in the national tournament since its inception in 1947. U.S. Military Academy teams won the tournament in 1956 and placed second in 1957.

### **West Point Debate Council**

The Debate Council, an activity within the Debate Council and Forum, sponsors an extensive program of forensic activities affording its members the opportunity of acquiring skills in public speaking and in the use of logic, and of using and perfecting these skills in tournament debating in competition with colleges and universities throughout the country. The Debate Council program for a typical year includes: seminars on debating techniques and the national debate topic, intrasquad practice debating, varsity and novice intercollegiate competition, high school audience debating, an intramural tournament, and an extemporaneous speech contest.

Of particular interest are the varsity intercollegiate and high school audience debate programs. USMA varsity teams participate in the leading college debate tournaments (38 in 1962-63, involving over 310 debates with 165 colleges and universities). Through the caliber of its performance in major tournaments each year, West Point has achieved recognition as one of the leading schools in intercollegiate debating. In order to gain experience in speaking before large audiences and to encourage interest in debating, cadets compete each year against teams from leading universities before high school, college, and civic group audiences.

### **West Point Forum**

This cadet organization, a part of the Debate Council and Forum, provides the cadet an opportunity to widen his intellectual interests.

It conducts seminars on a variety of topics to prepare cadets to participate in a large number of student conferences and model United Nations assemblies throughout the country. In 1962-63, cadets participated in conferences at such institutions as Texas A. & M., Georgetown University, Principia College, and the Air Force Academy. The Forum sponsors educational trips each year to the United Nations and to Washington, D.C., to allow cadets to observe at firsthand the operations of the United Nations and the major branches of our own Government. In addition, it presents a series of lectures by distinguished speakers.

## **Cadet Participation in Scientific Events**

Cadets participate in a number of annual scientific events such as the Eastern Colleges Science Conference. The close proximity of West Point to a large number of governmental, cultural, scientific, industrial, and research activities has enabled the Military Academy to extend classroom discussions and laboratory exercises into "the field" in a highly effective manner through a program of educational trips. Cadets have visited such installations as the Brookhaven National Laboratories, the Nevis Cyclotron Laboratory at Columbia University, Bell Telephone Laboratories, the Research and Development Laboratories at Fort Monmouth, the International Electric Corporation, the Republic Aviation Corporation, the Texaco Laboratories, Charles Pfizer and Company, and Aberdeen Proving Ground.

## AWARDS AND DISTINCTIONS

### Distinguished Cadets

In June of every year those cadets on the general merit roll of each class and on the graduating merit roll whose records show they have met the requirements set by the Academic Board are classed as "Distinguished". Distinguished cadets wear a five-pointed star, three-quarters of an inch in diameter, on each side of the collar of the dress coat and the full dress coat. The star is worn for one year by cadets who were distinguished in the work of the Second, Third, or Fourth Class year.

### Unit Achievement Awards

**SUPERINTENDENT'S AWARD (1958).** Two plaques awarded to the cadet company in each regiment which is judged to be the most outstanding in all areas of cadet endeavor.

**DEAN'S AWARD (1956).** Two plaques awarded to the academically outstanding company in each regiment.

**ARMY ATHLETIC ASSOCIATION AWARD (1958).** Two plaques awarded to the cadet company in each regiment which has made the greatest contribution to intercollegiate athletics.

**BANKERS ASSOCIATION OF NEW YORK AWARD (1924).** Two plaques awarded to the cadet company in each regiment ranking first in intramural athletics. A silver cup, formerly awarded to the cadet company ranking first in intramural athletics, is also inscribed with the designation of the winning companies.

**REGIMENTAL COMMANDER'S DRILL AWARD.** Two plaques awarded three times each year to coincide with the three drill seasons to the cadet company in each regiment that is the most outstanding in drill and ceremonies.

**GEORGE ALEXANDER CAMPBELL II MEMORIAL TROPHY (1949).** Established by members of the Class of 1951 in memory of their classmate, Cadet Campbell, who died during yearling summer camp, this silver cup is awarded to the company winning the brigade championship in intramural basketball.

**JARED WILLIAM MORROW MEMORIAL TROPHY (1951).** Established by Capt. Gerald D. Hall, USMA 1944, in memory of Lt. Jared William Morrow, USMA 1945, who died in battle in Korea



in 1950, this silver cup is awarded to the company winning the brigade championship in intramural track.

**PALMER E. PIERCE FOOTBALL TROPHY (1943).** This silver cup, originally awarded to Gen. Palmer E. Pierce, USMA 1891, by the National Collegiate Athletic Association in recognition of his services to the Association, and bequeathed by him to the Army Athletic Association, is awarded to the company winning the brigade championship in intramural football.

**ARTHUR H. TRUXES MEMORIAL TROPHY (1951).** Established by Capt. Gerald D. Hall, USMA 1944, in memory of Capt. Arthur H. Truxes, Jr., USMA 1945, who died in battle in Korea in 1950, this silver cup is awarded to the company winning the brigade championship in intramural cross country.

**INTRAMURAL ATHLETIC AWARDS.** Plaques are awarded to the companies winning the brigade championships in each intramural sport; smaller plaques are awarded to brigade runners-up.

### **Individual General Awards**

**THE HOWITZER MEMORIAL AWARD (1952).** A set of books in memory of the late Lt. Arthur M. Apmann, Jr., USMA 1950, to the Editor of the "Howitzer."

**ARMY TIMES AWARD (1956).** A wrist watch presented in the name of the Army Times to the Editor of "The Pointer."

**ASSOCIATION OF THE UNITED STATES ARMY AWARD (1961).** A wrist watch presented in the name of the Association of the United States Army to the cadet who best exemplified the traditions of the Military Academy and the United States Army.

**FRANCIS VINTON GREENE MEMORIAL AWARD (1920).** A set of books given in memory of Maj. Gen. Francis Vinton Greene, USMA 1870, to the cadet standing number one in the general order of merit at graduation.

**MILITARY ORDER OF WORLD WARS AWARD (1942).** A wrist watch presented to the graduating cadet who has made the greatest improvement since the completion of his fourth-class year.

### **Individual Military Awards**

**CHARLES G. DAWES AWARD (1929).** The Pershing Sword, given in the name of the late Brig. Gen. Charles G. Dawes to the First Captain, to commemorate General Pershing's being First Captain of the Corps of Cadets in 1886.

**ASSOCIATION OF GRADUATES AWARDS (1942).** A \$100 series E bond presented by the Association of Graduates to the cadet in the Second

Class and \$50 series E bonds to the cadets in the Third and Fourth Classes outstanding in military efficiency and leadership.

**THE KNOX TROPHY (1910).** A silver cup presented by the Sons of the Revolution in the State of New York to the cadet with the highest rating in military efficiency.

**THE GENERAL JOHN J. PERSHING AWARD (1948).** A wrist watch given by the Army and Navy Union, USA, to the cadet with the highest rating in tactics.

**THE GENERAL DOUGLAS MACARTHUR AWARD (1952).** A pistol given by the Army and Navy Union (Department of New York) to the cadet officer commanding the First Regiment, USCC.

**ARMY AND NAVY UNION LADIES AUXILIARY AWARD (1952).** A pistol given by the Ladies Auxiliary of the Army and Navy Union (Department of New York) to the cadet officer commanding the Second Regiment, USCC.

**CLASS OF 1927 AWARD (1957).** A wrist watch given by the Class of 1927, USMA, to the outstanding cadet company commander, First Regiment, USCC.

**THE LEADERSHIP FOUNDATION AWARD (1962).** A wrist watch given by the Leadership Foundation to the outstanding cadet company commander, Second Regiment, USCC.

**THE GENERAL JOHN H. FORNEY HISTORICAL SOCIETY AWARD (1963).** A set of luggage presented to a graduating cadet for Military Excellence in First Class Tactics.

## **Individual Academic Awards**

**AMERICAN LEGION AWARD (1935).** A stereo-phonograph given by the National Organization of the American Legion to the graduating cadet with the highest rating in chemistry.

**DAUGHTERS OF THE UNITED STATES ARMY AWARD (1962).** A silver cigarette box given by the Daughters of the United States Army to the graduating cadet with the highest rating in advanced chemistry.

**INTERCOLLEGIATE DEBATING AWARD (1947).** Two wrist watches given by the Consul General of Switzerland in the United States for excellence in intercollegiate debating.

**ARMED FORCES COMMUNICATIONS AND ELECTRONICS AWARD (1948).** A transistor radio given by the Armed Forces Communications and Electronics Association to the graduating cadet with the highest rating in electricity.

**COLONIAL DAUGHTERS OF THE SEVENTEENTH CENTURY AWARD (1934).** A set of books given by the National Society, Colonial

Daughters of the Seventeenth Century, to the graduating cadet with the highest rating in English.

LADIES AUXILIARY OF THE VETERANS OF FOREIGN WARS AWARD (1939). A pair of binoculars given by the Ladies Auxiliary of the Veterans of Foreign Wars of the United States to the graduating cadet with the highest rating in Fourth Class English.

STEBEN SOCIETY OF AMERICA AWARD (1936). A wrist watch given by the Steuben Society of America to the graduating cadet with the highest rating in foreign languages.

THE U. S. GRANT AWARD (1932). A wrist watch given by the Women's Relief Corps, Auxiliary to the Grand Army of the Republic, to the graduating cadet with the highest rating in engineering fundamentals.

SONS OF THE AMERICAN REVOLUTION AWARD (1962). A pistol given by the National Society of the Sons of the American Revolution to the graduating cadet with the highest rating in advanced graphics.

AMERICAN BAR ASSOCIATION AWARD (1941). A set of books given by the American Bar Association to the graduating cadet with the highest rating in law.

UNITED DAUGHTERS OF THE CONFEDERACY AWARD (1931). A saber, known as the Robert E. Lee Saber, given by the United Daughters of the Confederacy to the graduating cadet with the highest rating in mathematics.

DAUGHTERS OF THE AMERICAN REVOLUTION AWARD (1930). A portable typewriter given by the National Society, Daughters of the American Revolution, to the graduating cadet with the highest rating in mechanics of fluids.

THE CLIFTON CARROLL CARTER AWARD (1962). A pistol presented in the name of Mrs. Mai C. Carter as a memorial to the late Brig. Gen. Clifton Carroll Carter, USMA 1899, to the graduating cadet with the highest rating in Second Class mechanics of solids.

GENERAL WILLIAM A. MITCHELL AWARD (1942). A set of books given by Mrs. William A. Mitchell in memory of General William A. Mitchell, USMA 1902, to the graduating cadet with the highest rating in military engineering and military history.

DAUGHTERS OF FOUNDERS AND PATRIOTS OF AMERICA AWARD (1942). A wrist watch given by the National Society, Daughters of Founders and Patriots of America, to the graduating cadet with the highest rating in military hygiene.

THE EISENHOWER AWARD (1951). A silver tray presented in the name of Mr. Charles P. McCormick to the graduating cadet for excellence in military psychology and leadership.

THE LESLIE R. GROVES AWARD (1957). A silver tray presented in behalf of the Association of Graduates to the graduating cadet with the highest rating in nuclear physics.

THE COLONEL JAMES L. WALSH MEMORIAL AWARD (1956). A rifle presented in the name of the American Ordnance Association to the graduating cadet with the highest rating in ordnance engineering.

THE 306TH INFANTRY AWARD (1954). A wrist watch given by the Walter B. Tunick Estate to the graduating cadet achieving excellence in physical education over the four-year course.

VETERANS OF FOREIGN WARS AWARD (1937). A camera given by the Veterans of Foreign Wars of the United States to the graduating cadet with the highest rating in physics.

MILITARY ORDER OF FOREIGN WARS AWARD (1929). A wrist watch given by the National Commandery, Military Order of Foreign Wars, to the graduating cadet with the highest rating in the First Class course in social sciences.

THE CLASS OF 1930 AWARD (1954). A silver bowl, presented in the name of the late Honorable Edgar Bromberger, former City Magistrate of the City of New York, to the graduating cadet with the highest rating in the Second Class course in social sciences.

DAUGHTERS OF THE UNION VETERANS OF THE CIVIL WAR AWARD (1958). A wrist watch given by the Daughters of the Union Veterans of the Civil War to the graduating cadet with the highest rating in environment.

THE BENJAMIN KAUFMAN AWARD (1963). A set of books presented in the name of the National Ladies Auxiliary, Jewish War Veterans of the United States, in honor of Mr. Benjamin Kaufman, winner of World War I Congressional Medal of Honor, to the graduating cadet with the highest rating in humanities.

### **Individual Athletic Awards**

ARMY ATHLETIC ASSOCIATION TROPHY (1904). A silver tray is given by the Army Athletic Association to the cadet who has rendered the most valuable service to athletics during his career as a cadet.

THE GENERAL JOHN W. COFFEY MEMORIAL AWARD (1952). A silver tray given by Mrs. John W. Coffey in memory of Brig. Gen. John W. Coffey, USMA August 1917, to the captain of the baseball team.



THE EBER SIMPSON MEMORIAL TROPHY (1947). A silver tray purchased with the interest from a fund of \$2,000 presented by Col. George Simpson in memory of his son, Capt. Eber Simpson, USMA June 1943, is given to the captain of the basketball team.

THE COLONEL DAVID MARCUS MEMORIAL AWARD (1949). A silver tray purchased with the interest from a fund of \$2,000 established in memory of Col. David Marcus, USMA 1924, is given to the outstanding boxer in the graduating class.

THE EASTERN COLLEGIATE ATHLETIC CONFERENCE AWARD (1959). The Eastern Collegiate Athletic Conference Merit Award is given to the graduating cadet excelling in athletics and scholarship.

THE EDGERTON AWARD (1908). A silver tray with the Academy seal embossed at four places on the border, purchased under the terms of a legacy presented by Mrs. Wright Prescott Edgerton in memory of her husband, Col. Wright Prescott Edgerton, USMA 1874, is given to the captain of the football team.

THE COLONEL THURSTON HUGHES AWARD (1939). A silver tray, purchased with the interest from a fund of \$2,000 presented by Col. Thurston Hughes, USMA 1909, is given to the most valuable player on the football team.

THE THOMAS WEST HAMMOND MEMORIAL AWARD (1958). A silver tray, presented in the name of Mr. Chester Hammond in memory of his father, Col. Thomas West Hammond, USMA 1905, is given to the outstanding lineman on the football team.

THE RINGSDORF AWARD (1961). A silver tray, donated by Cols. Samuel D. Ringsdorf, USMA August 1917, and Paschal H. Ringsdorf, USMA 1923, is given to the Army player who contributed most to the team effort in the Army-Navy football game.

THE COLONEL JOHN A. ROBENSON MEMORIAL AWARD (1961). A silver tray, presented in the name of Mrs. Abigail R. Boylan in memory of her father, Col. John A. Robenson, USMA 1910, is given to the outstanding player on the 150-pound football team.

THE PIERCE CURRIER FOSTER MEMORIAL TROPHY (1900). Two silver trays purchased under the terms of the will of Mrs. Anna A. Foster in memory of her son, Pierce Currier Foster, USMA 1899, are given to the cadets ranking first and second in gymnastics.

THE HAL BEUKEMA MEMORIAL AWARD (1955). A silver tray, donated by members of the family, former and present officers in the Department of Social Sciences, USMA, and a group of former friends, in memory of Maj. Henry Shaw Beukema, USMA 1944, is given to the outstanding player on the hockey team.

INTRAMURAL. Winners of brigade individual sports contests such as track and cross country are awarded silver medallions; runners-up receive bronze medallions.

THE WILLIAM P. FICKES MEMORIAL TROPHY (1938). A silver tray, purchased with the interest from a fund presented by Mr. and Mrs. Walter M. Fickes in memory of their son, William P. Fickes, USMA 1936, is given to the captain of the lacrosse team.

THE GENERAL GEORGE S. PATTON, JR., MEMORIAL TROPHY (1956). A pistol presented by John M. McNally in memory of Gen. George S. Patton, Jr., USMA 1909, is given to the captain of the pistol team.

CLASS OF 1923 AWARD (1949). A silver tray, purchased with the interest from a fund of \$2,000 contributed by the Class of 1923, is given to the outstanding member of the swimming team in the graduating class.

THE FRED E. MCANIFF MEMORIAL AWARD (1961). A silver tray, presented by the West Point Chapter of the Society of the Daughters of the United States Army, is given to the outstanding member of the track team.

THE GENERAL WILLIAM L. BELL, JR., MEMORIAL AWARD (1957). A silver tray presented by Mrs. William Lewis Bell, Jr., in memory of her husband, Maj. Gen. William Lewis Bell, Jr., USMA 1929, is given to the outstanding tumbler in the Corps.

THE FRANCIS HENRY SCHOEFFEL MEMORIAL AWARD (1963). A rifle presented in the name of Francis Henry Schoeffel, USMA 1891, by Mrs. Francis Henry Schoeffel to the graduating captain of the rifle team.

## SCHOLARSHIPS

### Rhodes Scholarships

From 1923, when cadets of USMA first began to compete, to 1964, 45 Rhodes Scholarships have been awarded to Academy graduates who attended Oxford as Army or Air Force officers on active duty. Three graduates of the Military Academy are now at Oxford.

Elections for Rhodes Scholarships are held every year in December for entrance into Oxford in October of the following year. The scholarships are for a minimum period of 2 years study; a third year may be awarded if the Rhodes scholar presents a plan of study acceptable to his service and to the Rhodes trustees.

Cadets desiring to compete for a scholarship must be accredited by the Academic Board which screens them carefully. A Committee of Selection in each State recommends two candidates every year to a District Committee for six States. The District Committees each select four individuals from the candidates selected by the State committees. Candidates may apply either in the State in which they live or in the State in which they have received at least 2 years of their college education.

The basis of selection is that section of Cecil Rhodes' will in which are mentioned the four groups of desired qualities: (1) literary and scholastic ability and attainments; (2) qualities of manhood, truth, courage, devotion to duty, sympathy for and protection of the weak, kindliness, unselfishness, and fellowship; (3) exhibition during school days of moral force of character and of instincts to lead and to take an interest in his schoolmates; (4) fondness for and success in manly outdoor sports such as cricket, football, and the like.

The selection is not made, however, on any system of averaging up a man's qualifications. The first two groups of qualities are most important and committees are particularly interested in distinction of intellect and character giving promise of outstanding achievement in later life.

### Olmsted Scholarships

The George Olmsted Foundation currently awards annually two scholarships to graduates of the Military Academy for two years' study at a foreign university in other than an English speaking

country. Officers are considered for scholarships upon completion of a minimum of three years of service. The Foundation makes the selection from names submitted for consideration to the Department of the Army by the Academic Board. Selection criteria are scholastic, including linguistic ability, and traits of character and leadership demonstrated at West Point and in the military service after graduation. Universities presently attended by Military Academy graduates under this program include those of Geneva, Grenoble, and Heidelberg.

### **National Science Foundation Fellowships**

Since 1961 cadets have been permitted to compete for National Science Foundation Graduate Fellowships. These fellowships, which are awarded for periods of either nine months or one year, are open to graduates of all accredited institutions. Selection is based on academic records, recommendations regarding each applicant's ability, scores achieved in examinations designed to test scientific aptitude and achievement, and other evidence of potential ability for scientific study or work. In 1962 one cadet was awarded a fellowship and ten cadets received honorable mention; in 1963 five cadets were awarded fellowships and nine cadets received honorable mention; in 1964 of 32 cadets who competed for National Science Foundation Fellowships, 5 won fellowships and 23 received Honorable Mention.

### **Oak Ridge Institute of Nuclear Studies Fellowships**

The U.S. Atomic Energy Commission has established special fellowships in nuclear science and engineering to encourage promising students to undertake graduate studies in these fields at a university of their choice. Selection of fellows is based on academic grades, the breadth of science and engineering courses completed, recommendations, work experience, and career objectives. Of the eight cadet applicants who participated in the national competition during 1964, all eight were awarded a Special Fellowship for graduate study in the nuclear field.



## THE LIBRARY

*Librarian:* MR. EGON A. WEISS.

*Assistant Librarian:* MR. WILLIAM G. KERR.

*Chief, Readers' Services Division:* MISS ANN K. HARLOW.

*Chief, Technical Services and Acquisitions:* MR. JAMES H. CONWAY.

*Chief, Special Collections Division:* MR. THOMAS RUSSELL.

*Archivist:* MR. JOSEPH M. O'DONNELL.

*Assistant Archivist:* MR. KENNETH W. RAPP.

*Reference Librarians:* Interlibrary Loan: MR. JAMES H. CONWAY. Periodicals and Government Documents: MISS IRENE FEITH. Audio-Visual: MR. JOHN A. PARKER.

*Catalogers:* MISS ELIZABETH K. DUNN, MISS ANNA E. PIERCE, MISS MARION B. WELLAR.

The Library contains about 225,000 books, exclusive of those volumes in 13 academic department libraries and those volumes in 24 small libraries in cadet barracks. In addition, the library subscribes to over 950 periodicals. It has microfilm readers, photographic duplicating, and other audio-visual services which include facilities for cadets to listen, individually or in groups, to linguistic materials, readings of plays and poetry, and music.

In 1961, Congress appropriated \$4,222,000 for a new library building. This structure has an initial capacity of 450,000 volumes and seating space for 752 readers.

The library book collection represents the first Federal library and antedates the founding of the Academy in 1802 by almost a quarter of a century. The first important additions to the library were in 1815 when Maj. Sylvanus Thayer, Superintendent, 1817-1833, on an official trip to Europe was authorized by Secretary of War James Monroe to use this opportunity to buy military, scientific, and engineering works for the Military Academy. Major Thayer bought about 1,000 volumes.

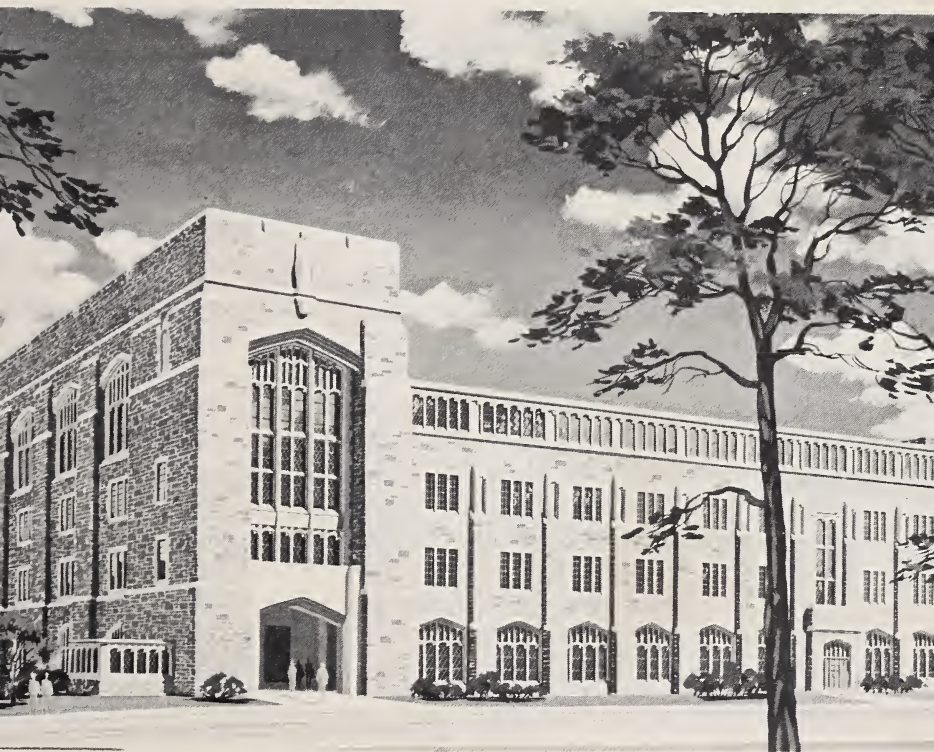
The library is similar to that of a liberal arts college, save that it contains a large proportion of mathematical, scientific and technical works, and has a complete military section. The collection of standard literary works is good; and that of 18th and 19th century periodicals is unusually representative. The library's broad coverage in the field of military art, history, and technology makes it a prototype of a national military library.

The manuscript and archival collection is extensive, and deals principally, though by no means exclusively, with the United States

Army, the Military Academy, and persons of the military profession. The collection of early American military art imprints is unique. The library is rich in both original and secondary sources dealing with the history of the Hudson Highlands.

The Archives and History Division maintains extensive cadet and Military Academy administrative records and conducts a historical program relating to the Military Academy and West Point.

The facilities of the library are available to research scholars and writers. During the Academic Year the library is open from 7:00 a.m. to 10:00 p.m. on weekdays and Saturdays, and from 2:00 p.m. to 10:00 p.m. on Sundays.



USMA Library

## THE WEST POINT MUSEUM

*Director:* MR. FREDERICK P. TODD, B.S.

*Curator of History:* MR. GERALD C. STOWE, B.S.

*Curator of Art:* MR. RICHARD E. KUEHNE, B.A.

*Curator of Design:* MR. RAY W. MONIZ, B.F.A.

*Assistant Curator of Design:* MR. JAMES H. KINSLEY, JR.

The West Point Museum is located in Thayer Hall, occupying the first and second floors of the southwest portion of this academic building. Its galleries and special displays are open without charge to the public throughout the year, every day of the week, from 10:30 a.m. to 4:30 p.m. The Museum is closed only on Christmas and New Year's Day.

Adjacent to the public galleries are the storage and research rooms maintained by the Museum to carry out its primary duty as a college museum by supporting the academic and military education of cadets of the Military Academy. To this end it maintains a continuous series of changing exhibits in cadet areas, arranges lectures and demonstrations, and opens its collections for loans to instructors and cadets. To this end also it maintains a considerable display of portraits and paintings, battle flags and other exhibits in various buildings on the post. Some of these paintings and flags can be seen by the public in the Library, the Cadet Chapel, and in Grant Hall.

The West Point Museum was established in 1854 but its collections actually date back to 1777. After the Battle of Saratoga in October of that year, much of the ordnance captured from the British was sent to West Point. A little later, part of the famous Great Chain stretched across the Hudson at West Point to bar navigation of the river to British men-of-war was stored here.

Throughout the first half of the 19th century the custom of sending trophies of war and objects of national historic interest to the Military Academy was maintained. In 1843, for example, the Secretary of the Treasury presented West Point with a brass culverin 6 pounder that had been given to the Continental Congress by Lafayette. After the close of the Mexican War in 1847, Gen. Winfield Scott sent large numbers of captured flags, cannon, and other war trophies to the Military Academy.



In 1848, the Secretary of War formally directed in the name of the President that West Point be the "depository of the trophies of the successful victory of our arms in Mexico." The authorities realized that permanent provision was needed for the ever-growing collections, and in 1854 they officially created the Ordnance and Artillery Museum, and established it on the third floor of the Academy, a building erected in 1838 on the site of the present East Cadet Barracks. Custodianship of relics, however, was not the new museum's only mission; for most of the next century it served as the laboratory for cadet instruction under the Department of Ordnance.

In 1909 the Museum was moved to the Administration Building where it remained until 1958. It was removed from the Department of Ordnance in 1948 and placed on an independent status. A full-time director was appointed in 1949 and given a professional staff.

The West Point Museum has probably the largest collection of military items in the Western Hemisphere. Unlike most military museums the story it tells is not confined to a national scene. One gallery is devoted to the development of military institutions and the art of war from the days of the Romans until the present; while others deal with ordnance, logistics, medals and decorations and kindred aspects of the military history of the Western World. The visitor is introduced to the important developments in tactics, to the Great Captains of History, and to the everyday life of the soldier. He is given to understand something of the impact on warfare of such historic events as the Industrial Revolution and nuclear fission.

The visitor's understanding of such matters is heightened by an extensive use of dioramas and full scale models. The visitor can, for example, stand behind a palisade of the days of the Indian Wars in America, or walk through a portion of a World War I trench. He can view episodes in important battles from Cynoscephalae in the year 197 B.C. to Gettysburg of 1863. In keeping with developments in other American museums, the West Point Museum has endeavored to fulfill its historical mission by treating, in part at least, with intangible cultural concepts and movements as well as with tangible objects.

## BUILDINGS AND GROUNDS

The military reservation at West Point consists of 16,011 acres. The original purchase of 1,770 acres was made from Stephen Moore in 1790; additional purchases made in 1824, 1879, 1889, 1903, 1905, and 1909 brought the acreage to 3,570.

From 1938 to 1945 the acreage was more than tripled by the acquisition of 11,401 acres to allow for the development and expansion of training facilities. On 1 December 1959 a gift of 1,040 acres by Mr. and Mrs. Gene Leone increased the holdings to the present total.

Of this total, 2,520 acres are the Post proper; they comprise the area lying south of Storm King Mountain between the old Storm King Highway and the Hudson River. Access to the Post proper is by three gates: the Thayer Gate (South Gate), from Highland Falls; the Lee Gate (North Gate), from the old Storm King Highway (Route NY 218); and the Washington Gate (West Gate), from the new Storm King Highway (Route US 9W).

The expansion since 1938 has been toward the west almost as far as Central Valley, N.Y., and toward the south almost as far as Route US 6. Route NY 293 runs from southwest to northeast on about the midline of the entire reservation.

### Buildings

ADMINISTRATION BUILDING (1909). Designed by Cram, Goodhue, and Ferguson in Gothic style. It is located on Thayer Road and contains the offices of the Superintendent, the Dean, the Academic Board, the General Staff, the Director of Admissions and Registrar, and the Information Office. The USMA Archives also occupy a portion of the building.

BARTLETT HALL (1913, 1938). Formerly the East Academic Building, it is named in memory of Col. William H. C. Bartlett, Professor of Natural and Experimental Philosophy, 1836-1871. The original building, 1913, was designed by Cram, Goodhue, and Ferguson; the east wing, 1938, by Paul Philippe Cret. Both are in Gothic style. Located between Thayer and Cullum Roads, north of the Administration Building. In addition to classrooms and labora-

tories it contains the offices of the Departments of Electricity, Mechanics, and Physics and Chemistry.

**CADET CHAPEL (1910).** Designed by Cram, Goodhue, and Ferguson in Gothic style. Located west of, and 300 feet above, the cadet barracks, it dominates the Post proper. The stained glass window over the altar has 27 panels, each depicting a militant Biblical character. The window at the entrance pictures The Revelation of St. John the Divine; it shows also the designs of the Medal of Honor and the Distinguished Service Cross. The windows in the nave are gifts of the several classes; the flags hanging in the nave were used in the War of 1812, the Mexican, Civil, and Spanish-American Wars. The Chapel Organ is the largest church organ in the Western Hemisphere, and contains over 14,000 pipes. The seating capacity is 1,500.

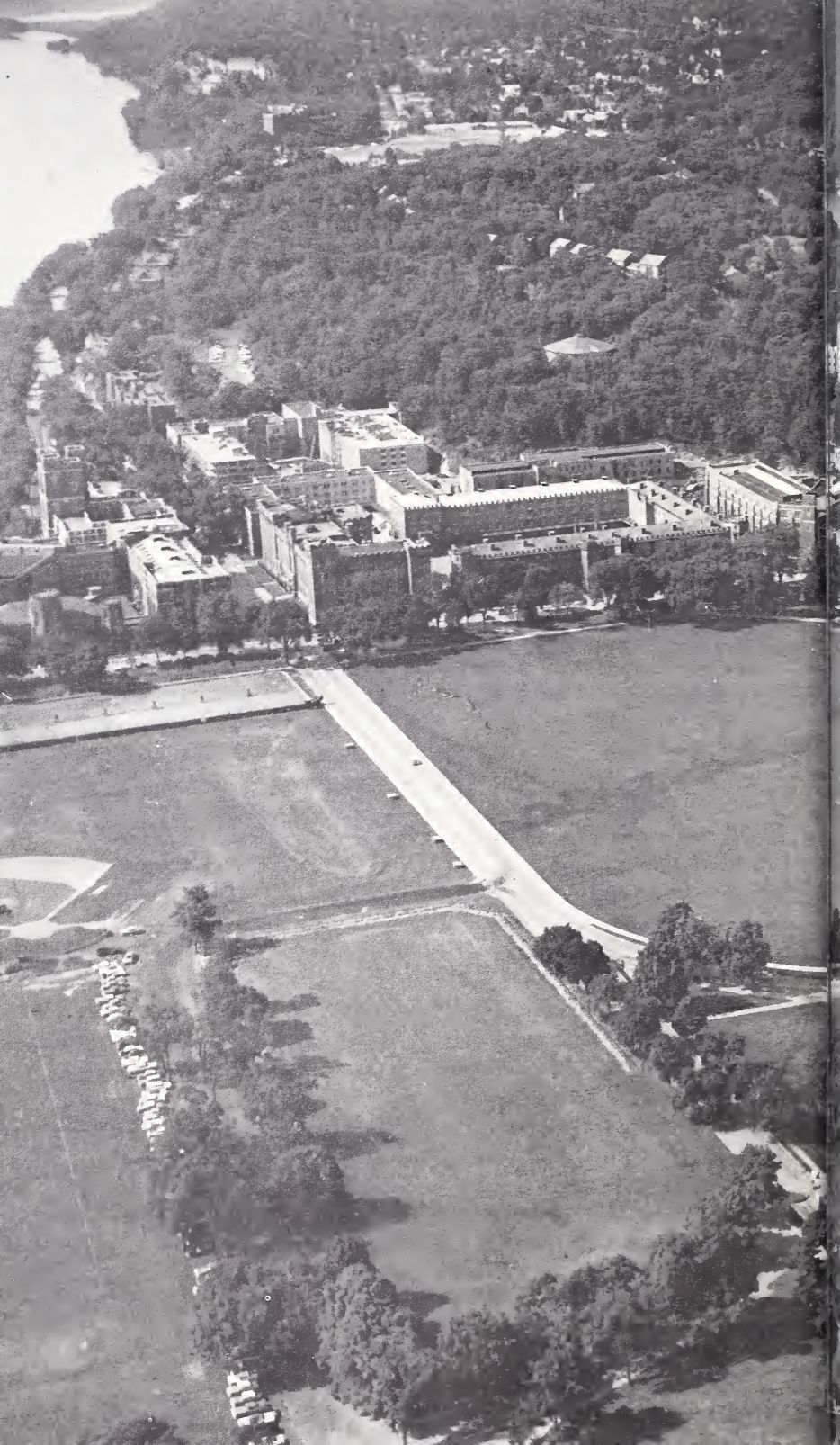
**CENTRAL BARRACKS (1851, 1882, 1921).** The designers of the 1851 and 1882 sections are not known, although it is likely that Maj. Richard Delafield had much to do with the design of the 1851 section and a Board of Engineers with the 1882 section. Capt. A. B. Proctor, Quartermaster Corps, designed the 1921 section. All are in Tudor style. The three sections form the three sides of a rectangle of which the East Barracks, located at Thayer and Jefferson Roads, forms the fourth side. The headquarters of the Commandant of Cadets is in a wing at the eastern end of the south section.

**CHAPEL OF THE MOST HOLY TRINITY (1900).** Designed by Heins and La Farge in Gothic style. Located at Mills and Washington Roads, on a sharp rise of ground, this Roman Catholic chapel is a copy of the St. Ethelreda Carthusian abbey parish church in County Essex, England. The Chapel, expanded in 1958 according to plans prepared by architect Alfred Reinhardt, now has a seating capacity of 550.

**CULLUM MEMORIAL HALL (1899).** Designed by McKim, Mead, and White in Greco-Roman style. Located on the east side of Cullum Road, across from Doubleday Field, and named after Major General George W. Cullum, USMA 1833, Superintendent 1864-1866, who gave it to house trophies of war and "statues, busts, mural tablets, and portraits of distinguished deceased officers and graduates of the Military Academy."

**EAST BARRACKS (1895).** Formerly the West Academic Building, located on Thayer Road opposite Bartlett Hall, designed by Richard M. Hunt in Gothic style. It was converted to cadet barracks in 1958-1959.









erial View of West Point

FIELD HOUSE (1939). Designed by Paul Philippe Cret. Located on Tower Road southwest of the West Shore Railroad. Used for indoor athletics and graduation ceremonies.

FIRST CLASS CLUB OR THE COMPOUND (1837). Benton, Benet, Crozier Halls, formerly known as the Ordnance Compound, named for Colonel James G. Benton, USMA 1842, first Professor of Ordnance and Gunnery; for Major General Stephen Vincent Benet, USMA 1849, the second Professor of Ordnance and Gunnery; and for Major General William Crozier, USMA 1876, a Chief of Ordnance, serves as an activity center for First Classmen and their guests.

GRANT HALL (1931). A wing of the South Barracks on Thayer Road directly across from the Administration Building. It is the cadet reception hall and contains the office of the cadet hostess.

GYMNASIUM (1910, 1933, 1937, 1947). The East Gymnasium (1910) was designed by Cram, Goodhue, and Ferguson; the North Gymnasium (1933) by the Quartermaster Corps; the West Gymnasium (1937) by Paul Philippe Cret; and the Central Gymnasium (1947) by Delano and Aldrich. All are in Gothic style. The gymnasium buildings are west of the Superintendent's quarters and north of New North Barracks.

HOSPITAL (1923, 1934, 1960). New buildings were constructed in 1923, William Gehron, architect, and in 1934, York and Sawyer, architects; extensive alterations were done in 1960. Located on the west side of Thayer Road, south of New South Barracks.

LAUNDRY (1956). Designed by John and Drew Ebersson; located in the north portion of Post off Washington Road near Washington Gate.

LIBRARY (1964). Designed by Gehron and Seltzer of New York in granite-faced Gothic style. Located at Jefferson and Cullum Road on the former site of the old Library which had outlived its usefulness. The new building will accommodate 450,000 books, reading rooms, seminar rooms, microfilm and audio-visual facilities, as well as space for military and rare book collections.

MICHIE STADIUM (1924, 1963). The football stadium between Delafield and Mills Road, west of the reservoir, designed in 1924 by the Osborn Engineering Co., and in 1963 by Roberts and Schaefer Co., Inc. Named for 1st Lt. Dennis Mahan Michie, USMA 1892, Captain of the first West Point football team, killed in action at San Juan, Cuba in 1898. The seating capacity is 29,425.



NEW NORTH BARRACKS (1939). Designed by Paul Philippe Cret in Gothic style. Located south of the gymnasium and west of North Barracks. Sometimes called West Barracks.

NEW SOUTH BARRACKS (1961). Designed by O'Connor and Kilham, in Gothic style. The new barracks, consisting of two buildings, are located on the site formerly occupied by the north wing of the Hospital. Completed in July 1962, they permit the Corps, for the first time in 40 years, to be housed two cadets per room.

NON-COMMISSIONED OFFICERS' MESS (1958). Located in the north portion of the Post off Washington Road, it was designed by Greenberg and Ames.

NORTH BARRACKS (1908). Designed by Cram, Goodhue, and Ferguson in Gothic style. Located at Jefferson Road and Scott Place. The chaplain's office is on the ground floor in the southeast corner.

OLD CADET CHAPEL (1837). Architect unknown. Designed in Greco-Roman style. It was located originally where Bartlett Hall now stands; in 1911 it was moved to its present site at the entrance to the cemetery. The American artist, Robert W. Weir, professor of drawing at the Academy from 1834 to 1876, painted the mural, entitled "War and Peace," on the wall behind the altar. The chapel is used now for funeral services, and for Jewish religious services. The seating capacity is about 450.

ORDNANCE AUTOMOTIVE LABORATORY (1939). Designed by Paul Philippe Cret in Gothic style. Located on Howard Road.

POST CHAPEL (1944). Constructed from a standard design used during World War II for chapels erected on military reservations. Located between Merritt Road and Biddle Loop. The seating capacity is about 325.

POWER HOUSE (1909, 1945, 1947). The original building was designed by Cram, Goodhue, and Ferguson in Gothic style; the alterations of 1945 and 1947 were done by the Engineer Corps. Located just south of Thayer Hall on Cullum Road.

SMITH RINK (1931). The indoor ice-skating rink, located on the east side of Mills Road south of the reservoir. It is named after Maj. Gen. William R. Smith, USMA 1892, Superintendent 1928-1932.

SOUTH BARRACKS (1931). Designed by William Gehron in Gothic style. Located at the southwest corner of Thayer and Brewerton Roads.

**SUPERINTENDENT'S QUARTERS (1820).** Architect unknown. Designed in Colonial style, and located on Jefferson Road. Col. Sylvanus Thayer was the first Superintendent to live there. Directly to the north are the Commandant's Quarters at the southwest corner of Parke and Washington Roads.

**THAYER HALL (1958).** This is an entirely new structure, built within the walls of the old Riding Hall. The building, designed by Gehron and Seltzer of New York, is of structural steel framing with reinforced concrete, completely air conditioned, and practically windowless. Besides administrative space for the Departments of English, Foreign Languages, Law, Mathematics, Military Art and Engineering, Military Psychology and Leadership, Ordnance, and Social Sciences, it includes 98 classrooms, two 200-seat writ rooms, two 200-seat map-problem rooms, an 800-seat auditorium, a 1,500-seat auditorium, a materials testing laboratory, and space on the first and second floors for the Museum which was formerly in the Administration Building. Roof parking for 200 automobiles also has been provided.

**UNITED STATES HOTEL THAYER (1926, 1948).** Designed by Caugey and Evans in Tudor style. Located on the east side of Thayer Road just north of the Thayer Gate. It is owned by the Government. Including the addition completed in 1948, there are accommodations for 500 guests.

**UTILITIES BUILDING (1935).** Designed by the Quartermaster Corps in Tudor style. Located at Ruger and Tower Roads. It contains the Post Exchange and the Commissary; and the offices of the Engineer, the Quartermaster, and the Transportation Officer.

**WASHINGTON HALL (1929).** Designed by William Gehron in Gothic style. Located on Jefferson Road between Central Barracks and North Barracks. It is the Cadet Dining Hall, and has a seating capacity of 2,500. The offices and drafting rooms of the Department of Earth, Space, and Graphic Sciences are on the fifth floor.

**WEST POINT ARMY MESS (1903, 1963).** The official name of the Officers' Club. Designed by McKim, Mead, and White in Classic style. Located on Cullum Road, south of Cullum Hall.

## **Monuments**

**AIR CADET MEMORIAL (1944).** Located on Mills Road at the north end of Lusk Reservoir. Erected by members of the Classes of '43, '44, and '45 to the memory of Air Cadets of the Academy who lost their lives while undergoing flying training.



**BATTLE MONUMENT (1897).** Designed by Stanford White, executed by Frederick MacMonnies. Located at Trophy Point at the northern limit of the Plain, and a little to the west of Washington Monument. It is dedicated to the memory of soldiers and officers of the Regular Army killed in action in the Civil War.

**DRINKING FOUNTAIN (1957).** Located at the corner of Thayer and Jefferson Roads, it was presented to the Academy by the Class of 1915.

**FRENCH CADET MONUMENT (1919).** Presented by the cadets of L'Ecole Polytechnique. Located on The Parade directly opposite Central Barracks.

**KELLEHER-JOBES MEMORIAL ARCH (1939).** Located at the north entrance to Flirtation Walk; erected by the Class of 1941 in memory of two outstanding athletes, Cadets William P. Kelleher and Charles S. Jobes, who died during their Third Class year.

**KOSCIUSZKO MONUMENT (1828).** Designed by John H. Latrobe, USMA 1822. Located to the north of Fort Clinton. Given by the Corps of Cadets in honor of Col. Thaddeus Kosciuszko, who helped plan the fortifications at West Point during the Revolutionary War.

**PATTON MONUMENT (1950).** Dedicated to the memory of Gen. George Smith Patton, Jr., USMA 1909, and presented by the officers and men of the units he commanded. Located across Jefferson Road from the Library.

**ROBINSON MEMORIAL (1940).** Located on Mills Road, west of gymnasium, in memory of Col. Wirt Robinson, Professor of Chemistry, Mineralogy, and Geology.

**SEDGWICK MONUMENT (1868).** Dedicated to the memory of Maj. Gen. John Sedgwick, USMA 1837, killed at Spotsylvania, 1864. Made from cannon captured by his corps, it is located at the northwest corner of The Parade.

**SHERIDAN MEMORIAL (1932).** Located on Flirtation Walk, in a small cove northwest of Gee's Point. Erected by the Corps of Cadets in honor of Cadet Richard Brinsley Sheridan, Jr., who was fatally injured on the gridiron of Yale Bowl, 24 October 1931.

**THAYER MONUMENT (1883).** Dedicated to Col. Sylvanus Thayer, the "Father of the Military Academy." Located on The Parade directly across from the entrance to Washington Hall.

**WASHINGTON MONUMENT (1916).** Located in the circle at the corner of Cullum and Thayer Roads. It is a replica of the Washington Monument in Union Square, New York City.

## Grounds

**CAMP BUCKNER (1945).** The summer training camp for the Third Class, located on the reservation five miles southwest of the Post proper, and known formerly as Camp Popolopen. Renamed in honor of Lt. Gen. Simon Bolivar Buckner, USMA 1908, killed at Okinawa in 1945.

**CEMETERY (1816).** Located at Washington and Ruger Roads. Among others, it contains the graves of Margaret Corbin, Revolutionary War heroine, and of Generals Scott, Custer, and Goethals.

**CLINTON FIELD.** Located immediately north of Doubleday Field and west of Fort Clinton. The name of the field derives from the Fort, named for a Revolutionary War general. Clinton Field was the site of the cadet's summer encampment from 1819 to 1942. It is used now for soccer, football, and lacrosse.

**CONSTITUTION ISLAND.** Donated to West Point in 1909 by Mrs. Russell Sage and Miss Anna B. Warner. About 280 acres, it is located opposite the north area of the Post proper. One end of the Great Chain, stretched across the Hudson to obstruct British navigation of the river during the Revolutionary War, was anchored in Martelaer's Rock, at the western point of the island.

**DELAFIELD POND.** The outdoor swimming pool, located on Delafield Road. Named after Maj. Gen. Richard Delafield, USMA 1818, Superintendent, 1838–1845 and 1856–1861.

**DOUBLEDAY FIELD (1939).** Baseball field, located between Thayer and Cullum Roads, east of The Parade. Named in honor of Maj. Gen. Abner Doubleday, USMA 1842, who is said to have laid out the first modern baseball diamond at Cooperstown, N.Y., in 1839.

**FLIRTATION WALK.** A foot trail extending three-quarters of a mile along the river from Cullum Road to Battle Monument and open only to cadets and their guests. It is probable that the early Chain Battery Walk is now included in Flirtation Walk.

**FORT CLINTON (1778).** Designed and begun by Lt. Col. Louis de la Radiere and completed by Col. Thaddeus Kosciuszko. Located at Cullum Road and Clinton Place. Originally called Fort Arnold, but after Arnold's treason in 1780 was renamed Fort Clinton, after Gen. George Clinton.

**FORT PUTNAM (1778; partly restored, 1907–1910).** Designed by Col. Thaddeus Kosciuszko and built by troops of Gen. Rufus Putnam. It is located on Mount Independence, 451 feet above tidewater, and is reached by foot trail from Mills Road.

**GREAT CHAIN.** The chain stretched across the Hudson from just north of Gee's Point to Martelaer's Rock on Constitution Island to obstruct navigation of the river by the British during the Revolutionary War. It was fastened in place on 11 April 1781. A number of the links are at Trophy Point.

**HOWZE FIELD.** Located directly south of Michie Stadium, and bounded by Mills Road on the east, by Howze Place on the south, and by Delafield Road on the west. A large recreation field, it was named in honor of Maj. Gen. Robert Lee Howze, USMA 1888, Commandant of Cadets, 1905-1909.

**LUSK RESERVOIR (1898).** One of the water supply reservoirs for West Point. It is located on Mills Road directly across from Michie Stadium, and has a capacity of 89,000,000 gallons.

**THE PARADE.** The drill and parade field, bounded by Jefferson Road on the south and west, by Thayer Road on the east, and Washington Road on the north.

**THE PLAIN.** That portion of the ground embracing The Parade, Clinton Field, and Doubleday Field.

**SHEA STADIUM (1958).** Track and field stadium, located northwest of the Field House. Named for Lt. Richard Thomas Shea, Jr., USMA 1952, captain of the 1952 track and field team, star athlete and record holder, killed in Korea in 1953 and posthumously awarded the Medal of Honor.

**STILWELL DAM AND STILWELL LAKE (1949).** Located on the reservation about four miles southwest of the Post proper. Named in honor of Gen. Joseph Warren Stilwell, USMA 1904, Commanding General U.S. Forces China-Burma-India 1942-1944, and Commanding General U.S. Tenth Army 1945.

**TROPHY POINT.** A small plot of ground located north of The Parade where are grouped many trophies captured in war by American forces. Several links of the Great Chain are there.



New Cadets Reporting



## ADMISSION

### General

In one major respect the requirements for admission to the Military Academy differ from the normal requirements for admission to a civilian college or university: a prospective candidate must first obtain a nomination from an authorized nominating source before he is permitted to be examined for entrance to the Academy.

A young man who is interested in pursuing a career in the military service and who wants to build this career on a West Point education should review the various sources of nomination to the Academy, as explained in the section on Nominations, and determine which sources are authorized to nominate him. The great majority of nominations (85 percent) are available from Members of Congress for residents of their States or Districts, but an applicant should also determine whether he is eligible to apply for nomination in one of the competitive categories.

Admission to The United States Military Academy is discussed under four topics:

1. *Requirements.* A prospective candidate should fulfill the basic requirements for admission and the recommended academic preparation.

2. *Nomination.* A prospective candidate should obtain a nomination from an authorized nominating source.

3. *Examinations.* A candidate should take the required entrance examinations in accordance with instructions supplied to all candidates by Headquarters, Department of the Army, and the Director of Admissions and Registrar, USMA.

4. *Appointment.* A candidate will receive notification from Department of the Army of qualification and appointment to fill the vacancy for which he was nominated.

### Requirements

In order for a young man to be eligible for appointment to the Military Academy, he must meet the following general requirements:

*Age.* On 1 July of the year he is to be admitted, a candidate must have attained the age of 17 years and must not have reached

the age of 22. The age requirements for all candidates are statutory and cannot be waived.

*Citizenship.* United States citizenship is an absolute requirement for appointment to the Military Academy except for students appointed as foreign cadets.

*Marital Status.* A candidate must never have been married. A cadet may not marry until he has graduated from the Academy; if any cadet is found to have been married, he will be separated immediately from the Academy.

*Character.* Each candidate's record must show positive evidence that he is responsible, trustworthy, emotionally stable, and of good moral character.

*Potential Leadership.* Each candidate's record should include information concerning the effectiveness of his personality and the extent to which he has participated in school and community affairs.

*Motivation.* A candidate should have a strong desire to become a cadet and pursue a military career. Experience has indicated that lack of motivation frequently results in failure to remain at the Academy.

*Physical Condition.* A candidate must be physically fit. It is recommended that the prospective candidate consult with his private doctor and dentist to determine whether he meets the medical considerations as outlined in appendix I.

*Prior Education.* A candidate should have satisfactorily completed a college-preparatory secondary-school education or its equivalent by the time he enters the Academy and must show by his scholastic record that his preparation, as outlined below, is adequate. Every candidate must submit his entire scholastic record.

## ACADEMIC PREPARATION

The kind and amount of preparation a candidate brings to the Academy are of vital importance to his successful pursuit of the academic courses at West Point. Once the academic year begins, the pace is rapid and basic knowledge of fundamental secondary-school subjects is assumed. A well-prepared cadet, therefore, finds himself in an enviable position.

The majority of candidates admitted to the Military Academy enter directly from secondary schools. Those who have graduated in the top portion of their high-school classes and have attained good grades in their mathematics and English courses should be able to qualify academically for admission. Experience has shown that

in order to pursue successfully the academic courses at the Military Academy, it is essential that a candidate should have completed 4 years of English, at least 3 years of mathematics but preferably 4, 2 years of a foreign language, a year of laboratory science, and a year of United States History. The candidate's scholastic record must show adequate preparation in these respects in order for him to qualify for admission. Furthermore, his preparation should include additional courses in the mathematical sciences and the humanities. In addition, candidates are encouraged to submit for validation consideration College Entrance Examination Board Advanced Placement test results.

Candidates unable to obtain appointments for admission to the Military Academy immediately following graduation from secondary school are encouraged to attend a civilian college or university pending receipt of an appointment to West Point. The undergraduate courses taken by the candidate should be substantial ones which will further prepare him for the rapid pace and high standards of academic accomplishment that are required at West Point.

For the guidance of prospective candidates and their counselors the recommended preparation in English, mathematics, foreign languages, sciences, and United States History is shown in the following paragraphs.

#### ENGLISH—COMPOSITION

Grammar, spelling, and punctuation.

Types of paragraphs and methods of developing paragraphs.

Organization of themes.

The techniques of summarizing.

Methods of research and use of the library.

Practice in speechmaking.

#### ENGLISH—LITERATURE

Ability to read with reasonable speed and good comprehension.

Familiarity with major patterns of writing, such as the essay, the drama, the short story, and the novel.

Some acquaintance with poetic forms, such as epic, narrative, dramatic monologue, ode, and sonnet.

Some familiarity with meter, stanza forms, and figures of speech.

Acquaintance with several plays of Shakespeare.

Some knowledge of representative English and American writers.

#### MATHEMATICS—GENERAL

In order to succeed in mathematics at USMA, it is essential that the candidate have completed at least 3 years of college preparatory

mathematics to include algebra, geometry, and trigonometry as outlined below. A candidate's scholastic record will not be considered qualifying for admission (see page 124) if it is deficient in any of the foregoing respects. It is especially important that the USMA applicant be studying mathematics in the year of school immediately preceding his intended enrollment at West Point, as this will facilitate his rapid adjustment to the demanding requirements at the Academy. A fourth year of college-preparatory mathematics is urged for all who have the opportunity for such instruction in their precollege academic training. Moreover a fourth year is *essential* for those who wish to study mathematics at West Point beyond the minimum required for graduation: see page 17 for comments pertaining to the Advanced Studies Program.

The necessary scope of preparation in algebra, geometry, and trigonometry is given in the following sections:

### MATHEMATICS—ALGEBRA

Emphasis in this area is placed on the following qualifications: (1) firm grounding in basic concepts and definitions; (2) a facility with basic techniques; and (3) the ability to apply logical analysis to the solution of problems. The candidate should be prepared in the following:

Applications of the fundamental operations.

Special products and factors.

Operations with fractions.

Radicals; fractional and negative exponents.

Systems of linear and quadratic equations.

Rectangular coordinates; the graphing of linear and quadratic equations in one and two variables.

Ratio, proportion, variation.

Common logarithms and applications.

Progressions, arithmetic and geometric.

The binomial theorem; the binomial formula with fractional and negative exponents.

Mathematical induction.

Elementary numerical trigonometry.

### MATHEMATICS—GEOMETRY

As with algebra, careful preparation in the fundamentals of plane geometry and selected topics from solid geometry is necessary. The candidate should possess: (1) a knowledge of the basic concepts, definitions, and theorems of plane geometry; (2) an acceptable



understanding of the nature of direct and indirect proof, and a facility with careful deductive reasoning as evidenced by his ability to prove standard theorems; (3) familiarity with the geometric properties of common plane figures; (4) a knowledge of spatial relationships, particularly those pertaining to lines and planes in space; and (5) familiarity with the definitions and geometrical properties of prisms, pyramids, cylinders, cones and spheres. The candidate should be prepared in the following:

Congruency theorems, and related theorems on triangles.

Inequalities of lines and angles.

Parallel and perpendicular lines.

Properties of quadrilaterals.

Circles: chords, central angles, arcs, tangents, secants.

Concurrent lines.

Similar triangles.

Areas of polygons.

Constructions.

The area of a circle as a limit.

Relations of lines and planes in space.

Definitions and properties of prisms, pyramids, cylinders, cones and spheres.

## MATHEMATICS—TRIGONOMETRY

In this subject the following qualifications are emphasized: (1) a knowledge of the concept of function and precise definitions of trigonometric functions of any angle; (2) thorough familiarity with the basic trigonometric identities; and (3) ability to apply logical analysis to the solution of problems. The candidate should be prepared in the following:

Angles and their measure, standard position.

Trigonometric functions of angles and real numbers.

The Unit Circle.

Graphs of functions in rectangular and polar coordinates.

Applications of logarithms to trigonometry.

Fundamental identities, trigonometric equations.

Double and half-angle formulas.

Product, sum and difference formulas, and applications.

Solution of oblique triangles, law of cosines and law of sines.

DeMoivre's Theorem, complex numbers.

## MATHEMATICS—ADVANCED PROGRAM

This program includes 5.5 credit hours of mathematics beyond that required as standard for graduation from USMA. It is offered

initially to selected cadets whose pre-USMA academic record shows: (1) high quality of performance in the standard preparation outlined above in algebra, geometry and trigonometry; (2) not less than 4 years of college-preparatory mathematics including elementary plane analytic geometry; (3) active study of mathematics during the final year before entering the Military Academy. A cadet whose pre-USMA record satisfies these requirements must also achieve high standing in mathematics during his early months at West Point in order to remain in the Advanced Program. A candidate aspiring to this program is urged to take the Level II rather than the Level I Mathematics achievement test of the College Board.

### FOREIGN LANGUAGES—PREPARATION

Two years of high-school study of any foreign language will normally prove to be a helpful background for any of the languages taught at West Point. Those interested in taking one of the advanced language courses would do well to take 3 years of the same language (French, German, or Spanish) before entering the Academy. For those interested in studying Portuguese, previous courses in Latin and/or Spanish are advisable. For those desiring to study Russian, courses in either Latin or German, or preferably both, are recommended. (If previous Russian study is possible, it would, of course, provide the best preparation.) Regardless of the language studied, applicants should concentrate on the basic organization of the language, including word forms and functions and sentence structure; on basic vocabulary, to include the common idiomatic expressions; and on accurate pronunciation and proper intonation in word groups and sentences. Courses offering extensive practice in speaking and aural comprehension, without ignoring the fundamentals of the language, should provide excellent preparation for the courses at the Military Academy.

### FOREIGN LANGUAGES—ADVANCED PROGRAM

Standard courses in five modern languages are offered at West Point: French, German, Portuguese, Russian, and Spanish. Each cadet studies one of these languages during his first 2 years at the Academy. Cadets are normally assigned to study the language of their choice; but it is sometimes necessary to assign a cadet to the language of second choice, in cases where quotas are oversubscribed. Advanced courses are conducted (during the same time and in lieu of the standard courses) in French, German, and Spanish, for those who qualify in a special placement examination consisting of several

written parts, a dictation, an aural comprehension test, a passage to be read aloud, and oral replies to a number of simple questions in the language. Advanced courses may be conducted in Portuguese and Russian provided a sufficient number of cadets qualify therefor. A minimum of 2 years of high-school study of the language or 1 year of college study is the prerequisite for consideration for the advanced course. Cadets who have completed 2 years of high-school study but who fail to qualify for the advanced course may normally take the standard course in the same language. Cadets having more than 2 years of previous high-school study or more than 1 year of college study must, if they do not qualify for the advanced course in that language, select another language for study at the Military Academy.

## SCIENCE

Preparation should include, as a minimum, a standard secondary-school course (including laboratory) in general science, physics, or chemistry. Experience has indicated the desirability of including all three courses in secondary-school preparation.

## UNITED STATES HISTORY

The candidate should know the facts and understand the chronological and other relationships concerning the major developments in American History, to include:

Settlement and growth of the English Colonies.

The American Revolution.

Growth of American democratic institutions.

Expansion of the United States.

The Civil War.

Economic development of the United States.

Growth of American social and cultural patterns.

International Relations.

## Nomination

Before a young man may be authorized to take the required entrance examinations—academic, medical, and physical aptitude—to qualify for admission, he must apply for, and obtain, an official nomination.

The cadetships authorized at the Military Academy are allocated as follows:

CONGRESSIONAL	<i>Source of Nomination</i>	<i>Number</i>
435 Representatives (5 each).....		2,175
100 Senators (5 each).....		500
Vice Presidential.....		5
District of Columbia.....		5
Canal Zone.....		1
Puerto Rico.....		6
Guam, Virgin Islands, American Samoa.....		1
		<hr/> 2,693
COMPETITIVE		
Sons of Deceased Veterans.....		40
Army:		
Regular Components.....	27 annually	
Reserve Components.....	27 annually	
Presidential.....	27 annually	
Honor Military and Honor Naval Schools.....	13 annually	
SONS OF PERSONS AWARDED THE MEDAL OF HONOR.....	Unlimited	
FOREIGN CADETS.....		24

Graduation of the senior class normally leaves about 1,000 of these cadetships vacant and hence available to new candidates each year.

A prospective candidate should examine carefully the sources of nomination to determine those he is eligible to seek and the procedures for applying. A prospective candidate may obtain more than one nomination in any given year.

Having determined the proper nominating sources in his case, a prospective candidate should submit an application to the pertinent authorities, requesting a nomination to the Military Academy. No special application form is required, a regular business letter is all that is necessary. In his application, he should give his residence, state briefly his reasons for wanting to enter the Academy, and name the secondary schools and colleges he attended, listing the courses he has taken and the grades received. He also should list his extracurricular activities and honors received in each activity.



## CONGRESSIONAL

Nominations from these sources are entirely in the hands of the nominating authorities who have the cadetships at their disposal, and all requests for nomination must be addressed to them. The law requires that candidates nominated from the states at large, congressional districts, the District of Columbia, the Canal Zone, or the island of Puerto Rico, be domiciled in the geographical unit from which nominated.

The Vice President nominates from the United States at large. United States Senators nominate from their respective states at large. Representatives in Congress nominate from their districts. The Commissioners of the District of Columbia nominate from among residents of the District. The Governor of the Canal Zone nominates from among the sons of civilians residing in the Canal Zone and sons of civilian personnel of the United States Government and the Panama Canal Company residing in the Republic of Panama. The Resident Commissioner and the Governor nominate for Puerto Rico. The Governors of Guam, Virgin Islands, and American Samoa nominate from among the sons of U.S. citizens or nationals residing in Guam, Virgin Islands, or American Samoa.

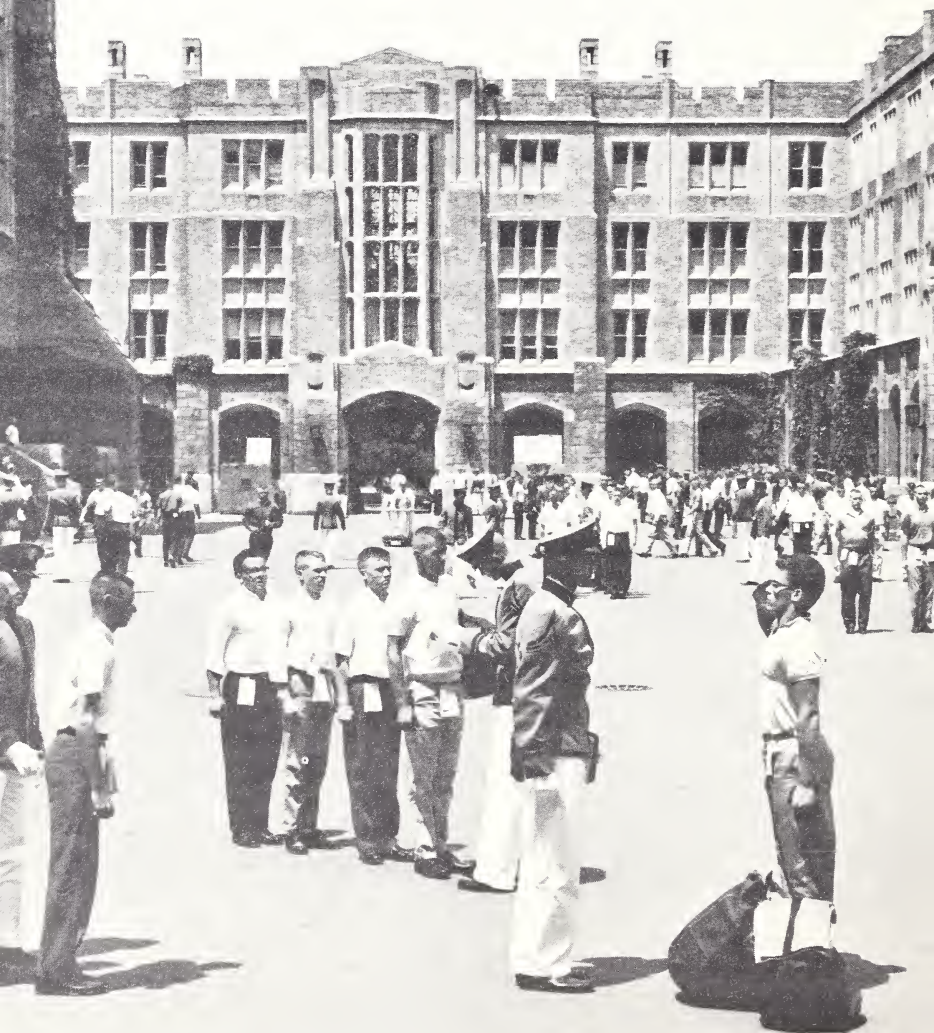
Most of these authorities conduct preliminary screening examinations to facilitate their selection of nominees. Prospective candidates, therefore, are encouraged to apply for Congressional nominations at least a year prior to the July of admissions.

*Congressional: Principal-Alternate Method.* Members of Congress utilizing this method may nominate six candidates, one being named as principal, one as first alternate, one as second alternate, one as third alternate, one as fourth alternate, and one as fifth alternate. The first alternate, if qualified, will be admitted if the principal fails; the second alternate, if qualified, in case the principal and first alternate both fail; the third alternate, if qualified, in case other candidates fail and so on for succeeding alternates.

*Congressional: Competitive Method.* In many cases members of Congress, upon making their six nominations for each vacancy, authorize the Academic Board, USMA, to select the best qualified of their nominees. Such nominees are termed "Congressional Competitors." Congressional competitors must submit College Board scores from the December, January, or March test administration.

## COMPETITIVE

Appointments to vacancies within the competitive categories are awarded to the best-qualified candidates within each group.



A candidate for one of these vacancies can qualify only by taking the College Board examinations at the December (Saturday, 5 December 1964) test administration. Failure of a competitive candidate to take the December College Board tests—regardless of the circumstances—will cancel his nomination. Competitive candidates disqualified in the December College Board tests will be denied further examination under instructions from Headquarters, Department of the Army. There is no restriction on the residence of a competitive candidate. A description of the competitive nomination categories follows:

(1) *Regular and Reserve Components of the United States Army:*

Fifty-four (54) cadetships are provided annually under this category. They are divided equally between members of the Regular Army and members of the Reserve Components (Army Reservists and Army National Guardsmen).

Admission of candidates to fill Regular component vacancies is made from among all qualified Regular Army competitors regardless of the command from which nominated. Army Reserve component vacancies are filled from among all qualified National Guard and Army Reserve competitors regardless of the State, District, or command from which nominated. Army publication AR 350-55 gives detailed instructions for making application for Regular and Reserve component nominations. This publication may be obtained from the nearest Army installation or by writing to Headquarters, Department of the Army, ATTN: AGPB—M, Washington, D.C., 20315.

(2) *Presidential:*

For over a century Presidential nominations have been reserved for the sons of members of the Regular components of the Army, Navy, Air Force, Marine Corps and Coast Guard, who are still in service, retired, or who died while serving. These nominations are administered at Headquarters, Department of the Army. Applications must be made by letter to the Adjutant General, ATTN: AGPB—M, Department of the Army, Washington, D.C., 20315, no later than 30 November 1964. Adopted sons are eligible for nomination if they were adopted prior to their 15th birthday; a copy of the order of court decreeing adoption, duly certified by the clerk of the court, must accompany the application. Letters requesting nomination should include the following:

Name, address, and date of birth of applicant

Name, Grade, Service Number, Component and Branch of Service of the parent



Retired or Deceased (furnish date and copy of retirement orders or casualty report)

Officers (AUS or Reserve)—Attach Statement of Service prepared by personnel officer indicating Regular or Reserve status for all periods of service

Enlisted Men—Attach statement prepared by personnel officer listing date of enlistment, date of expiration of enlistment, component and branch of service.

(3) *Honor Military and Honor Naval Schools:*

Thirteen (13) cadetships are provided annually for Honor Military and Honor Naval schools. Each such school of the essentially military type, as determined by annual Departments of the Army and Navy inspections, is invited to nominate three candidates annually from among its honor graduates. The number of available vacancies will be filled in order of merit, regardless of the schools from which the candidates are nominated. Each nomination must contain a certification by the head of the institution that the candidate is an honor graduate of a year for which the institution was designated an honor military or naval school. However, the institution is not limited to those graduates of the current year. Honor School nominations must be received by The Adjutant General, ATTN: AGPB-M, Headquarters, Department of the Army, Washington, D.C., 20315, prior to 30 November 1964.

(4) *Sons of Deceased Veterans of World War I or II or the Korean War:*

Forty (40) cadetships are provided for the sons of members of the Armed Forces of the United States who were killed in action or who died of wounds, injuries, or disease resulting from active service during World Wars I or II or between June 27, 1950, and midnight of January 31, 1955. The Veterans' Administration determines the eligibility of all applicants, and its decisions are final and binding on the Department of the Army. Application should be made by letter (no form is prescribed) addressed to The Adjutant General, ATTN: AGPB-M, Headquarters, Department of the Army, Washington, D.C., 20315. Application must be made prior to 30 November 1964. The letter should state the full name, date of birth, and address of the applicant (complete service address should be given if the applicant is in the Armed Forces), and the name, grade, service number, and last organization of the veteran parent, together with a brief statement concerning the time, place, and cause of death. The claim number assigned to the veteran parent's case by the Veterans' Ad-



ministration should also be furnished. Unlike the other competitive categories, there is no fixed input of cadets each year. Rather, enough cadets are appointed in this category to make up for those who have departed the Military Academy through attrition or graduation.

## SONS OF PERSONS AWARDED THE MEDAL OF HONOR

Sons of recipients of the Medal of Honor may be nominated and appointed to the Military Academy. The administration of these nominations is in the Department of the Army. Application by those eligible should be made by letter (no form is prescribed) to The Adjutant General, ATTN: AGPB-M, Headquarters, Department of the Army, Washington, D.C., 20315. The letter should contain the applicant's full name, address, and date of birth (complete service address should be given if the applicant is in the Armed Forces), the name, grade, and branch of service of the parent and a brief statement of the date and circumstances of the award. Candidates nominated from this source may qualify in the same manner as a Congressional principal candidate. All who are found fully qualified will be admitted as cadets, regardless of the number.

## FOREIGN CADETS

By mutual agreement between the United States and the countries concerned, young men from the foreign countries listed below may be designated to take the entrance examinations and, if qualified, be authorized to receive instruction at the Military Academy. Applications must be submitted to the United States Government by the government concerned. Requirements for the admission, advancement from class to class, and graduation of foreign cadets are similar to those for cadets of the United States. Foreign cadets are not entitled, however, by reason of their graduation, to appointment in the Armed Forces of the United States. Foreign cadets receive the same pay and allowances as cadets appointed from the United States.

*Republic of the Philippines.* One Philippine National, selected on the basis of scores on the entrance examination from among those designated by the President of the Republic of the Philippines, may be authorized to enter with each class and receive instruction at the Military Academy.

*American Republics.* A total of not more than 20 citizens of the American Republics may receive instruction at the Military Academy

at any one time. Not more than three persons from any one country may be cadets at the same time.

*Other Foreign Countries.* Citizens of other foreign countries have been permitted from time to time to attend the Military Academy upon specific authorization of the United States Congress in each case.

## QUALIFIED ALTERNATES AND QUALIFIED COMPETITORS

When it is determined that the number of new cadets of an entering class will not bring the Corps to its authorized strength, the Academic Board may recommend for appointment qualified candidates, regardless of the vacancies for which they were nominated. Thus, a young man who is fully qualified to enter the Military Academy but who did not receive the appointment to the particular vacancy for which he was competing will still be considered for appointment to enter the Academy as a qualified candidate. No application by the individual is necessary or desired, for all qualified candidates are considered by the Academic Board. In making its selection the Board considers the following factors: academic ability based upon the candidate's entire scholastic record; character and other personal attributes, as shown by confidential statements furnished by principals, teachers, and other school officials; evidence of exceptional capabilities; and leadership potential. Cadets admitted upon recommendation of the Academic Board are not charged to the Congressional or Competitive quotas under which they were originally nominated.

## REAPPLICATIONS

A candidate who is not selected for a class entering the Academy may reapply for a nomination and qualify for appointment as a cadet in a subsequent year. Policies as to whether results of previously taken examinations will be considered in such cases are set forth in the section on Examinations.

## Examinations

Upon the receipt of a candidate's nomination from a nominating authority, The Adjutant General, Headquarters, Department of the Army, will send the candidate a letter of notification. This letter officially authorizes the candidate to take the academic, medical, and physical aptitude examinations required to establish qualification for appointment to the Military Academy to fill the vacancy for which nominated. The candidate also receives detailed instructions covering such matters as submission of transcripts of scholastic records and personal-history data.

### ACADEMIC EXAMINATION

The academic examination by which authorities at the Military Academy determine eligibility for admission to the Corps of Cadets is based on two factors:

1. A review of the candidate's scholastic record to determine that he has been habitually sound enough to warrant admission, and that college-preparatory subjects have been broadly distributed throughout the secondary-school education.

2. Acceptable performance on the following tests of the College Entrance Examination Board:

The Scholastic Aptitude Test

The Achievement Test in English Composition

The Achievement Test in either Level I or Level II Mathematics\*

Although not required, submission of a well-written College Board Writing Sample will be considered additional evidence of academic qualification. Hence, candidates are urged to take the Writing Sample Test.

The importance of a candidate's record of performance in secondary school is stressed positively. A candidate's performance in comparison to his peers in secondary school is the best single predictor of academic success at West Point. The student who by performance over a long period submits evidence of excellent academic achievement at the secondary-school level is considered most likely to satisfy the demands of the rigorous academic program presented at the Military Academy. For example, over 76 percent of the cadets who entered the Military Academy in July 1963 (Class of

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\*Scores on either the Level I or Level II Mathematics achievement test will be accepted by the Military Academy. No adjustment is made on the scores because of any possible difference in the degree of difficulty of the two tests; however, an individual who has done well in three years of college-preparatory mathematics and is enrolled in a fourth year is prepared for the Level II test and should not hesitate to take it.

1967) ranked in the top fifth of their high school classes; over 18 percent ranked in the second fifth.

Although the candidate's secondary-school record indicates his drive and initiative, and is the best single predictor of academic success, it is not the only valid predictor. College Board test scores also predict academic success at West Point to a marked degree; but these test scores become more valid when used jointly with other measuring indices, such as the secondary-school and/or college academic record. Thus a candidate who has a relatively poor secondary-school record may fail to qualify even though he has achieved good College Board test scores, while the candidate who has an excellent scholastic record but who scored lower on the College Board tests may qualify academically. Moreover, the College Board test scores and secondary-school scholastic record are not the sole factors in the examination. The Military Academy also considers carefully all other evidence in the candidate's prior scholastic record which may predict his success at the Military Academy. For example, good scholastic performance in college would be strongly favorable while poor performance would be strongly unfavorable.

A candidate who fails to gain admission to West Point upon completion of secondary school and is still interested in preparing at USMA for an Army career, is advised to attend a college, pursue a course whose contents and standards are comparable to those of the Military Academy's first year, and submit a record of good scholastic performance.

In addition to the regularly scheduled tests of the College Board at more than 800 centers throughout the United States and foreign countries, the March College Board tests are given at designated military stations (appendix IV) along with the medical and physical aptitude examinations required by the Military Academy. Information on dates of administration, location of test centers, dates by which the applicant must register, and methods of application are contained in the College Board Bulletin of Information. This booklet may be obtained from the principal, guidance counselor, or librarian in most high schools or may be obtained by writing to: The College Entrance Examination Board, P.O. Box 592, Princeton, N.J., 08540, or P.O. Box 1025, Berkeley, Calif., 94701.

The nature and scope of each College Board test, together with sample questions, are described in other booklets published by the College Entrance Examination Board. The College Board will



send free to all candidates, booklets describing the tests for which they register.

The U.S. Government will pay the College Board test fees of all authorized candidates. An application form for registering is contained in the material supplied to nominated candidates by Department of the Army. The candidate must request on his application form that his scores be sent to the Military Academy.

A Congressional Candidate nominated as a principal or alternate prior to the closing date for registration for the March College Board tests may take the tests prescribed for him at any of the regularly scheduled administrations of the College Board prior to the March tests, or at the March tests conducted especially for the Military Academy at military stations listed in appendix IV. A Congressional Candidate nominated subsequent to the March College Board tests may take the tests prescribed for him at the special administration at West Point in June.

Congressional candidates nominated as a principal or alternate who have previously taken any of the required College Board tests should request the appropriate CEEB office (Princeton or Los Angeles) to send the scores to the Military Academy for consideration. After receipt of the prior scores and the candidate's educational record, the candidate will be advised of the status of his academic qualification.

Congressional competitors, as defined on page 131, must submit College Board scores from the December, January, or March test administration.

Candidates who have previously failed academically must retake the College Board Scholastic Aptitude and achievement tests to qualify under the new nomination.

Competitive candidates seeking to qualify under one of the following categories—Army (Regular and Reserve Components), Presidential, Sons of Deceased Veterans, or Honor Military or Naval Schools—must take the Scholastic Aptitude Test and the required achievement tests in English Composition and Mathematics at the December administration. Failure of a competitive candidate to report for the December examination automatically cancels his nomination.

A candidate holding more than one nomination, one or more of which is competitive (including Congressional Competitive), must either: (1) follow the procedure for his competitive nomination, the results of which will determine his eligibility under both types of

nomination, or (2) relinquish his competitive nomination and meet the requirements for his principal or alternate nomination.

## MEDICAL EXAMINATION

Every candidate, regardless of the type of nomination he receives, is required to undergo a thorough medical qualification examination prior to entrance to the Military Academy. Requirements for this examination are contained in appendix I.

Upon receipt of a nomination, a candidate will be authorized to take the medical qualification examination at one of the stations listed in appendix II. The candidate will contact the hospital, in writing, requesting an appointment. A medical qualification examination is also given at the stations listed in appendix IV in conjunction with the academic and physical aptitude examinations. Candidates receiving late nominations may take a medical qualification examination at West Point in June.

A medical qualification examination taken within a 12-month period immediately preceding the date of entrance is valid for admission. Candidates are encouraged to take this examination as soon as possible after receiving a nomination, but no later than 31 December 1964, in order to establish early medical qualification for admission. Those unable to take the medical examination by this date will take the examination at designated military stations later.

Candidates wearing contact lenses will remove the lenses at least 72 hours prior to reporting for the medical examination.

At the time of the examination, it is imperative that the candidate report all previous injuries and operations to assist the examining officer and to alleviate uncertainty in findings reported. The Army will accept or reject a candidate only on the basis of a qualification (final-type) medical examination. Candidates who are assured of medical acceptability on the basis of any other type medical examination are cautioned that the results are purely advisory and not final or binding in any way upon the Department of the Army.

Instructions as to the arrangements which must be made with the examining station are supplied by The Adjutant General, Headquarters, Department of the Army at the time the candidate is notified of his nomination. Travel and personal expenses incurred in taking the medical examination are the responsibility of the candidate.

A prospective candidate is urged to see his private doctor and dentist for medical and dental consultations as outlined in appendix I.

## PHYSICAL APTITUDE EXAMINATION

Each candidate is required to take a physical aptitude examination designed to measure strength, coordination, muscular power, endurance, speed, and agility. The examination is graded on the basis of the total score. If a passing grade is achieved on the whole examination, failure to achieve a passing score on any single test will not necessarily result in disqualification.

The physical aptitude examination is given at the military installations listed in appendix IV. Candidates receiving nominations after the March examinations will take the physical aptitude examination at the special June examinations at West Point.

Candidates should prepare for this examination by engaging in vigorous activities, such as running, conditioning exercises, and competitive games, rather than by practicing on specific test items.

## MARCH EXAMINATIONS

Instructions from The Adjutant General, Headquarters, Department of the Army will authorize the candidate to report for examination at the military station nearest his home (app. IV) on Wednesday, 3 March 1965 where he may take all of the examinations required for admission. The physical aptitude and medical examinations are given first and should be completed by Friday afternoon. On Saturday, 6 March, the College Board tests will be given at these military stations. During this examination period (Wednesday p.m.—Saturday p.m.) living accommodations and meals will be provided at nominal cost. Except for servicemen whose expenses are paid by the Government, travel and personal expenses are the responsibility of the candidate.

Failure to complete all examinations—academic, medical, and physical aptitude—by the end of the March examinations nullifies a Congressional Competitive or a principal or alternate nomination, unless in the case of a principal or alternate nomination, failure to report is due to sickness or some other unavoidable cause, in which case the principal or alternate candidate may request authority to take the special June examinations at West Point.

## JUNE EXAMINATIONS

A special administration of the College Board tests and of the medical and physical aptitude examinations is given at West Point on Tuesday, 8 June 1965. These examinations are limited to candidates nominated after the March examinations and principal and

alternate nominees unable to take the March examinations because of sickness or other unavoidable causes.

## ADMISSIONS PROCESS

The qualification and selection of candidates consists of a process which involves: (1) prediction of academic achievement; (2) evaluation of personal qualifications; (3) recognition of outstanding interests, activities, or achievements; (4) prediction of achievement in physical education; and (5) determination of medical fitness. Academic potential is determined by academic performance in secondary school and/or college and by scores on the College Board tests. There is no set cutoff score on any of the required College Board tests nor any cutoff on any rank in class. Academic standards are more specifically described in a class-profile pamphlet which is printed and distributed annually. This profile gives a distribution of scores on the College Board tests and a description of the secondary-school class standing of admitted cadets.

All candidates are notified whether they are: (1) qualified and entitled to admission for a vacant cadetship; (2) qualified but not entitled to admission because there is no vacant cadetship; or (3) disqualified academically, medically, or in physical aptitude. For the various competitive categories, candidates are selected on a best-qualified basis within each category. This determination is made by giving 60 percent weight to academic potential, 30 percent weight to leadership potential, and 10 percent weight to physical aptitude.

All decisions affecting admission of cadets are made by the Academic Board under policies approved in the Department of the Army.

Candidates who have poor secondary-school records are encouraged to show academic success with college-level work if they hope to meet West Point's academic standards for admission.

## Appointment

From 7 to 8 weeks after a candidate has completed the required examinations—academic, medical, and physical aptitude—he will be advised by The Adjutant General, Headquarters, Department of the Army, whether he is qualified and whether he has been selected to fill the vacancy for which he has been nominated. Those entitled to admission will be directed to report to West Point on the first of July. Appointees will be furnished a letter of instructions giving details of reporting, such as time, place, and articles to bring.



## PREPARATORY PHYSICAL CONDITIONING

Because of the nature of the new cadets' training during their first 2 months at West Point, physical demands upon them are necessarily great. Experience indicates that those cadets who, prior to admission, have conditioned themselves physically are best able to meet the training requirements. The candidate should strive for the degree of conditioning required for vigorous team sports. He is advised to practice heavy physical conditioning exercises (such as pull-ups, sit-ups, and push-ups) until many repetitions of the exercises can be performed without severe physical strain. In addition, he should strengthen his legs and wind by regular cross country running and by fast climbing on steep slopes. A program of vigorous competitive sports should be followed, with emphasis on variety of sports rather than on one favorite activity. Any candidate in doubt about his physical-conditioning methods would be well-advised to consult a high school or college physical education department.

### Obligations

#### DEPOSIT UPON ENTRANCE

Because the purchase of his uniforms, textbooks, etc., requires a heavy expenditure of funds during his first year, the appointee should make a deposit of \$300 prior to 15 June of the year of his entrance to the Academy. When such deposit is in the form of a check, it should be made to the Treasurer, USMA, and mailed to him at West Point. The deposit is credited to the cadet's account.

#### IMMUNIZATIONS

The appointee is required to furnish the Surgeon, USMA, by mail, evidence from a physician of successful smallpox vaccination, including type of reaction, given within six months prior to entry to the Military Academy. Candidates examined at West Point in June will be required to submit such documentary evidence, by mail, as soon as possible thereafter. A list of other vaccinations or inoculations received by the appointee should be included.

#### TRAVEL EXPENSES

New cadets who were members of the Armed Services on active duty are entitled to permanent change of station allowances as provided under the Joint Travel Regulations.



Bartlett Hall

New cadets who were not previously members of the Armed Services on active duty are entitled to the permanent change of station allowances for travel actually performed, not to exceed the official distance between the place which the cadet certifies was his actual permanent place of abode, home or school, at the time such travel to the Academy commenced. The allowance for travel at personal expense is 6 cents per mile. Payment of the travel allowance is usually made in the month of September and is credited to the cadet's account. Should the deposit upon entrance plus the travel allowance exceed \$300, the cadet may submit a request to have the excess over \$300 returned to his parents. No action is taken on any request for the return of excess deposit until the travel allowance has been paid. The request for return of excess allowance to parents must be initiated by the cadet.

## OATH OF ALLEGIANCE

Each appointee (except a foreign candidate) takes the oath of allegiance to the United States in a formal ceremony on the day of admission.

## ENGAGEMENT FOR SERVICE

Upon admission each cadet (except a foreign cadet), with the consent of his parents or guardian, if he is a minor, must sign articles by which he shall engage, unless sooner separated by competent authority—

To complete the course of instruction; and

If tendered an appointment as a commissioned officer in a Regular component of one of the armed services upon graduation from the United States Military Academy, to accept such appointment and to serve under such appointment for not less than 5 consecutive years immediately following the date of graduation; and

In the event of the acceptance of his resignation from a commissioned status in the Regular component of such armed service prior to the sixth anniversary of his graduation, or in the event of an appointment in such Regular service not being tendered, to accept a commission which may be tendered him in the Reserve component and not resign therefrom prior to such sixth anniversary; and

In the event of his separation from the Corps of Cadets prior to graduation, to complete his active duty obligation, or to accept, if qualified, transfer to the Army Reserve in an appropriate enlisted grade, and to complete the 6-year service obligation, including 6 months active duty training if required.

## **Pay, Leave, and Promotions**

### **PAY AND ALLOWANCES**

Cadets are members of the Regular Army and, as such, receive pay and allowances as provided by pertinent statutes. Cadets currently receive \$111.15 a month, from which they must pay for their uniforms, textbooks, and incidentals. Quarters, rations, and medical care are provided. The pay and allowances received are adequate to cover all expenses.

### **LEAVES OF ABSENCE AND HOLIDAYS**

During the academic year (September–May), duties are suspended for about 12 days at Christmas and 4 days in March. Leaves of absence may be granted to all cadets at Christmas and to members of the three upper classes in March. The three upper classes also receive leaves of 4 weeks during the summer period (June–August), the remainder of the time being devoted to practical military instruction. Duties for all classes are suspended on national holidays. Eligible cadets are authorized to take weekend leaves as follows: First Class—nine per academic year, Second Class—two per academic term, Third Class—one per academic term.

### **PROMOTION UPON GRADUATION**

When a cadet has completed the course of instruction and meets all required standards he is, upon graduation, promoted and appointed a second lieutenant in the Regular United States Army.



## GENERAL INFORMATION

### Board of Visitors

The custom of a Board of Visitors for West Point goes back almost to the year of its founding. On 1 July 1815, "A Regulation for the Government of the Military Academy," approved by Secretary of War William H. Crawford, provided for the appointment of a Board to consist of five "competent gentlemen," with the Superintendent as President, who should attend at each of the annual and semi-annual examinations at West Point and report thereon to the Secretary.

The Boards are appointed at present under the provisions of an act of Congress approved 29 June 1948. This act specifies that a Board of Visitors shall visit the Military Academy each year and inquire into the state of morale and discipline, curriculum, instruction, physical equipment, fiscal affairs, academic methods, and other matters relating to West Point which the Board may decide to consider, and submit a written report to the President of the United States giving its views and recommendations pertaining to the United States Military Academy. The personnel of the Board shall be as follows:

- a. The Chairman of the Committee on Armed Services of the Senate, or his designee;
- b. Three other Members of the Senate to be appointed by the Vice President, two of whom shall be members of the Committee on Appropriations of the Senate;
- c. The Chairman of the Committee on Armed Services of the House of Representatives, or his designee;
- d. Four other Members of the House of Representatives to be appointed by the Speaker of the House of Representatives, two of whom shall be members of the Committee on Appropriations of the House of Representatives;
- e. Six persons to be appointed by the President.

### BOARD OF VISITORS 1963

*Appointed by the President of the United States:* GEN. J. LAWTON COLLINS (Ret.), Director, Pfizer International, Inc., Washington, D.C.; DR. ROBERT F. GOHEEN, President, Princeton University; MR. EDWARD B. HANIFY, Member, Ropes and Gray, Boston; DR. EDWIN D. HARRISON, President, Georgia Institute of Technology, Atlanta, Ga.; MR. ROBERT T. STEVENS, President, J. P. Stevens and Company,



Ernest Orlando Lawrence, 1958



John Foster Dulles, 1959



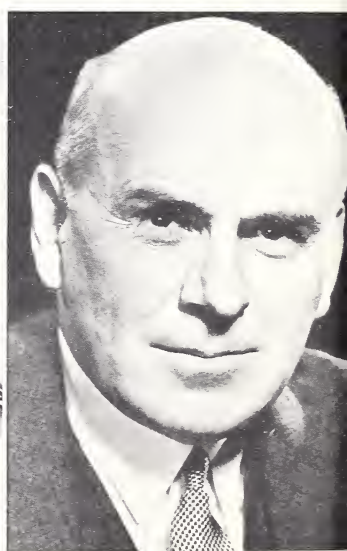
Henry Cabot Lodge, 1960



Dwight David Eisenhower, 1961



Douglas MacArthur, 1962



John J. McCloy, 1963

## RECIPIENTS OF THAYER AWARD

New York, N.Y.; DR. ERIC A. WALKER, President, Pennsylvania State University, University Park, Pa.

*Appointed by the Vice President of the United States:* SENATOR KENNETH B. KEATING, New York; SENATOR ESTES KEFAUVER, Tennessee; SENATOR JOHN O. PASTORE, Rhode Island.

*Appointed by the Speaker of the House of Representatives:* REPRESENTATIVE WILLIAM H. NATCHER, Kentucky; REPRESENTATIVE HAROLD C. OSTERTAG, New York; REPRESENTATIVE R. WALTER RIEHLMAN, New York; REPRESENTATIVE OLIN E. TEAGUE, Texas.

*Ex-Officio Members of the Board:* SENATOR RICHARD B. RUSSELL, Georgia (represented by Senator Daniel K. Inouye, Hawaii), REPRESENTATIVE CARL VINSON, Georgia (represented by Representative George Huddleston, Jr., Alabama).

## **Association of Graduates**

The Association of Graduates, USMA, is a voluntary membership organization open to all graduates of the Military Academy and to former cadets who were honorably discharged after at least one academic term at the Academy. About 92 percent of the 17,732 living graduates, and many former cadets who did not graduate, are members.

The Association was founded at New York City in 1869 under the personal leadership of Brig. Gen. Sylvanus Thayer, USMA 1808, and Maj. Gen. Robert Anderson, USMA 1825, hero of Fort Sumter. Annual meetings have been held at West Point during June Week since 1870. Its purpose is "To acquire and disseminate information on the history, activities, objectives, and methods of the Military Academy; to acquire and preserve historical materials relating to that institution; and to encourage and foster the study of military science there by worthy young men."

The Bureau of Internal Revenue has ruled that the Association is tax-exempt and all gifts, contributions, donations, and bequests thereto are likewise exempt from taxation. The Association of Graduates is the only organization through which alumni as a body can contribute their time, effort, and money toward the enhancement of their Alma Mater.

Under the aegis of the Association four annual events have grown to become important traditions. At the Alumni Parade in June Week the Long Gray Line, led by the Superintendent, the President of the Association of Graduates, and the Oldest Graduate Present, marches from Cullum Memorial Hall to Thayer Monument. There, in the presence of the Corps and a multitude of visitors, homage is paid to the "Father of the Military Academy" and to the memory of those graduates who died during the preceding year. It has been said that

this gathering of alumni represents, by those attending, more United States history than any other group of similar size.

Homecoming Day is celebrated annually in the Fall at one of the home football games. This occasion, which was first established in 1958, has proved quite successful and affords the alumni a second annual opportunity to visit their alma mater and renew old acquaintances. In addition to the football game, a review in honor of the alumni is held by the Corps of Cadets.

Founders Day, 16 March, is celebrated at West Point and at nearly 100 other places throughout the world. These celebrations traditionally include a dinner, attended by all alumni within commuting distance, and speeches by the oldest and youngest graduates present. The Association of Graduates supports these annual celebrations in many ways.

Each year since 1958 the Association of Graduates has presented the Sylvanus Thayer Award, a gold medal, to the United States citizen whose record of service to his country exemplifies devotion to the principles expressed in the motto of West Point—"Duty, Honor, Country." Recipients of the award have been Dr. E. O. Lawrence in 1958, John Foster Dulles in 1959, Henry Cabot Lodge in 1960, Dwight D. Eisenhower in 1961, Douglas MacArthur in 1962, and John J. McCloy in 1963.

The major programs of the Association include maintenance of biographical files on all graduates; publication of necrologies and class reports in *Assembly*; receipt and disposition of historical items; support and establishment of West Point Societies; maintenance of an up-to-date list of addresses; correspondence concerning graduates; presentation of awards to cadets; selection of the person to receive the Sylvanus Thayer award; and organization of alumni activities at West Point.

Information is disseminated through two publications published by the West Point Alumni Foundation, Inc., a nonprofit corporation. The annual *Register of Graduates and Former Cadets* includes a summary of the record of each graduate and where he is and what he is doing. The quarterly magazine *Assembly* under the editorial sponsorship of the Association of Graduates gives current information about the Academy and its graduates.

The Association's administrative organization consists of a President and five Vice Presidents, elected annually; a Secretary-Treasurer; and 36 Trustees, 12 of whom are elected annually for



terms of 3 years. The Association's office is located in Cullum Memorial Hall.

Cooperating with the Association are the following autonomous West Point Societies:

<i>State</i>	<i>West Point Society of—</i>
<i>Alabama</i>	ALABAMA (Birmingham)
	MOBILE
<i>Arizona</i>	PHOENIX
	SOUTHERN ARIZONA (Tucson)
<i>Arkansas</i>	ARKANSAS (Fort Chaffee)
<i>California</i>	LOS ANGELES
	MONTEREY PENINSULA (Monterey)
	SAN DIEGO
	SAN FRANCISCO BAY AREA
<i>Colorado</i>	DENVER
	PIKES PEAK REGION (Colorado Springs)
<i>Connecticut</i>	CONNECTICUT (Hartford)
<i>District of Columbia</i>	DISTRICT OF COLUMBIA
<i>Florida</i>	CAPE KENNEDY
	CENTRAL FLORIDA (Orlando)
	FLORIDA WEST COAST (Tampa)
	NORTH FLORIDA (Jacksonville)
	SOUTH FLORIDA (Miami)
<i>Georgia</i>	ATLANTA
	SAVANNAH
	COLUMBUS (Fort Benning)
<i>Hawaii</i>	HAWAII (Honolulu)
<i>Illinois</i>	CENTRAL ILLINOIS (Champaign-Urbana)
	CHICAGO
<i>Indiana</i>	INDIANAPOLIS
<i>Kentucky</i>	LOUISVILLE
<i>Louisiana</i>	MID-GULF (New Orleans)
<i>Maryland</i>	MARYLAND (Baltimore)
<i>Massachusetts</i>	NEW ENGLAND (Boston)
<i>Michigan</i>	MICHIGAN (Detroit)
<i>Minnesota</i>	MINNESOTA (Minneapolis)
<i>Missouri</i>	KANSAS CITY
	ST. LOUIS
<i>New Mexico</i>	ALBUQUERQUE
<i>New York</i>	NEW YORK (New York City)
	ROCHESTER
	WESTERN NEW YORK (Buffalo)
<i>North Carolina</i>	WESTERN NORTH CAROLINA (Asheville)
<i>North Dakota</i>	NORTH DAKOTA (Bismarck)
<i>Ohio</i>	CENTRAL OHIO (Columbus)
	CINCINNATI
	CLEVELAND
	NORTHWESTERN OHIO (Van Wert)
	DAYTON

<i>State</i>	<i>West Point Society of—</i>
<i>Oklahoma</i>	EASTERN OKLAHOMA (Tulsa)
<i>Oregon</i>	PORTLAND
<i>Pennsylvania</i>	CENTRAL PENNSYLVANIA (Harrisburg)
	PHILADELPHIA
	WESTERN PENNSYLVANIA (Pittsburgh)
<i>Philippine Islands</i>	PHILIPPINES (Manila)
<i>South Carolina</i>	CHARLESTON
<i>Tennessee</i>	TENNESSEE (Nashville)
<i>Texas</i>	EL PASO AREA
	HOUSTON
	NORTH TEXAS (Dallas)
	SOUTH TEXAS (San Antonio)
<i>Washington</i>	SEATTLE
<i>Wisconsin</i>	MILWAUKEE

## SUPERINTENDENTS OF THE UNITED STATES MILITARY ACADEMY

1. JONATHAN WILLIAMS  
Maj. Corps of Engineers----- 15 Apr 1802—20 June 1803
2. JONATHAN WILLIAMS  
Lt. Col. Corps of Engineers <sup>1</sup> 19 Apr 1805—31 July 1812
3. JOSEPH G. SWIFT  
Col. Corps of Engineers----- 31 July 1812—24 Mar 1814
4. ALDEN PARTRIDGE  
Capt. Corps of Engineers----- 3 Jan 1815—28 July 1817
5. SYLVANUS THAYER  
Capt. Corps of Engineers----- 28 July 1817—1 July 1833
6. RENE E. DE RUSSY  
Maj. Corps of Engineers----- 1 July 1833—1 Sept 1838
7. RICHARD DELAFIELD  
Maj. Corps of Engineers----- 1 Sept 1838—15 Aug 1845
8. HENRY BREWERTON  
Capt. Corps of Engineers----- 15 Aug 1845—1 Sept 1852
9. ROBERT E. LEE  
Capt. Corps of Engineers----- 1 Sept 1852—31 Mar 1855
10. JOHN G. BARNARD  
Capt. Corps of Engineers----- 31 Mar 1855—8 Sept 1856
11. RICHARD DELAFIELD  
Maj. Corps of Engineers----- 8 Sept 1856—23 Jan 1861
12. PETER G. T. BEAUREGARD  
Capt. Corps of Engineers <sup>2</sup> 23 Jan 1861—28 Jan 1861
13. RICHARD DELAFIELD  
Maj. Corps of Engineers <sup>2</sup> 28 Jan 1861—1 Mar 1861
14. ALEXANDER H. BOWMAN  
Maj. Corps of Engineers----- 1 Mar 1861—8 July 1864
15. ZEALOUS B. TOWER  
Maj. Corps of Engineers----- 8 July 1864—8 Sept 1864

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<sup>1</sup> Major Williams resigned 20 June 1803, on a point of command, and pending its settlement on 19 April 1805, when he again returned to service as Chief Engineer, no permanent Superintendent was appointed, the command devolving upon the senior officer of the Corps of Engineers present for duty.

<sup>2</sup> Captain Beauregard, by order of John B. Floyd, Secretary of War, relieved Major Delafield from the Superintendency, but was himself displaced five days later by direction of the succeeding Secretary of War Joseph Holt, the command again devolving upon Major Delafield.



Battle Monument



16. GEORGE W. CULLUM	
Lt. Col. Corps of Engineers---	8 Sept 1864—28 Aug 1866
17. THOMAS G. PITCHER	
Col. Infantry <sup>3</sup> -----	28 Aug 1866—1 Sept 1871
18. THOMAS H. RUGER	
Col. Infantry-----	1 Sept 1871—1 Sept 1876
19. JOHN M. SCHOFIELD	
Maj. Gen. US Army-----	1 Sept 1876—21 Jan 1881
20. OLIVER O. HOWARD	
Brig. Gen. US Army-----	21 Jan 1881—1 Sept 1882
21. WESLEY MERRITT	
Col. Cavalry-----	1 Sept 1882—1 July 1887
22. JOHN G. PARKE	
Col. Corps of Engineers-----	28 Aug 1887—24 June 1889
23. JOHN M. WILSON	
Lt. Col. Corps of Engineers---	26 Aug 1889—31 Mar 1893
24. OSWALD H. ERNST	
Maj. Corps of Engineers-----	31 Mar 1893—21 Aug 1898
25. ALBERT L. MILLS	
1st Lt. Cavalry-----	22 Aug 1898—31 Aug 1906
26. HUGH L. SCOTT	
Maj. Cavalry-----	31 Aug 1906—31 Aug 1910
27. THOMAS H. BARRY	
Maj. Gen. US Army-----	31 Aug 1910—31 Aug 1912
28. CLARENCE P. TOWNSLEY	
Col. Coast Artillery Corps---	31 Aug 1912—30 June 1916
29. JOHN BIDDLE	
Col. Corps of Engineers-----	1 July 1916—31 May 1917
30. SAMUEL E. TILLMAN	
Col. US Army-----	13 June 1917—11 June 1919
31. DOUGLAS MACARTHUR	
Brig. Gen. US Army-----	11 June 1919—30 June 1922
32. FRED W. SLADEN	
Brig. Gen. US Army-----	1 July 1922—23 Mar 1926
33. MERCH B. STEWART	
Brig. Gen. US Army-----	24 Mar 1926—5 Oct 1927
34. EDWIN B. WINANS	
Maj. Gen. US Army-----	23 Oct 1927—25 Feb 1928

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<sup>3</sup> The Superintendents were selected from the Corps of Engineers until passage of the law of 13 July 1866, which opened the Superintendency to the entire Army. By the Act of 12 June 1856, the local rank of Colonel was conferred upon the Superintendent.

35. WILLIAM R. SMITH  
Maj. Gen. US Army----- 26 Feb 1928—30 Apr 1932
36. WILLIAM D. CONNOR  
Maj. Gen. US Army----- 1 May 1932—17 Jan 1938
37. JAY L. BENEDICT  
Brig. Gen. US Army----- 5 Feb 1938—17 Nov 1940
38. ROBERT L. EICHELBERGER  
Brig. Gen. US Army----- 18 Nov 1940—12 Jan 1942
39. FRANCIS B. WILBY  
Maj. Gen. US Army----- 13 Jan 1942—4 Sept 1945
40. MAXWELL D. TAYLOR  
Maj. Gen. US Army----- 5 Sept 1945—28 Jan 1949
41. BRYANT E. MOORE  
Maj. Gen. US Army----- 28 Jan 1949—17 Jan 1951
42. FREDERICK A. IRVING  
Maj. Gen. US Army----- 1 Feb 1951—31 Aug 1954
43. BLACKSHEAR M. BRYAN  
Lt. Gen. US Army----- 3 Sept 1954—14 July 1956
44. GARRISON H. DAVIDSON  
Lt. Gen. US Army----- 15 July 1956—30 June 1960
45. WILLIAM C. WESTMORELAND  
Maj. Gen. US Army----- 1 July 1960—28 June 1963
46. JAMES B. LAMPERT  
Maj. Gen. US Army----- 29 June 1963—

## APPENDICES

### I. Special Medical Examination Considerations

The following special medical examination considerations are listed in order that candidates, prospective candidates, their private physicians and dentists may have readily available medical requirements for entrance to the Academy. Candidates authorized to have this medical examination accomplished at one of the facilities listed in appendix II will contact the hospital, in writing, requesting an appointment.

**MEDICAL HISTORY:** The medical history will be compiled with particular care. Inquiries will be made in detail concerning all illnesses, injuries, and operations which the candidates may have incurred, and elaborated upon when indicated. Failure to fully document these items invariably results in disappointment to all concerned when medical disqualification is determined later. A history of familial diseases will be investigated with thoroughness. If the candidate has received medical care which significantly affects his physical status, then he will be required, whenever practicable, to submit evidence from attending physicians or from hospital records concerning this medical care.

**BODY BUILD AND MEASUREMENTS:** Build will be recorded as slender, medium or heavy. In addition, where obesity exists it will also be recorded. Poor physical development, regardless of actual height and weight ratio, is a cause for rejection.

The following standard weight table according to height and age applies.

*Standards of Weight According to Height*

Height (inches)	Weight		Height (inches)	Weight	
	Min.	Max.		Min.	Max.
66.....	107	191	73.....	135	231
67.....	111	196	74.....	139	237
68.....	115	202	75.....	143	243
69.....	119	208	76.....	147	248
70.....	123	214	77.....	151	254
71.....	127	219	78.....	153	260
72.....	131	225			

A range in height from 66 inches to 78 inches inclusive is required. A waiver for overheight or up to 2 inches below the minimum height may be considered in the Department of the Army, provided the candidate possesses exceptional educational qualifications, or has an outstanding military record, or has demonstrated outstanding abilities. Height will be carefully measured without shoes or stockings and will be recorded to the nearest quarter of an inch. The weight will be taken without shoes or clothing and recorded to the nearest pound.

**TEETH:** The teeth, mouth, and gums will be thoroughly examined by a practicing dental surgeon. The examination will include bite-wing roentgenograms and, when indicated, periapical roentgenograms. Notation will be made as to the serviceability or unserviceability of all dentures and bridges. Defects and infections, including periodontal disease, will be recorded and classified as to severity. Dental examinations of applicants wearing appliances for active orthodontic treatment will be deferred until such appliances are removed.

Dental standards for acceptance are as follows:

(1) A satisfactory relationship between the mandible and the maxilla of such nature that adequate prosthodontic replacements may be fabricated should it become necessary to remove any or all of the remaining natural teeth.

(2) That existing prosthodontic appliances meet generally acceptable standards of design, construction, and tissue adaptation.

(3) In the case of an existing lower prosthodontic appliance, that it be retained and adequately stabilized by sufficient serviceable natural teeth.

(4) No carious teeth or improperly restored, or filled, natural teeth.

(5) Must not have a disfiguring appearance of the existing natural anterior teeth as a result of disfiguring spaces, malalignment, or malocclusion.

(6) A sufficient number of serviceable anterior and posterior natural or artificial teeth so opposed as to permit the proper mastication of a normal diet.

Causes for rejection are:

(1) Failure to meet the requirements and standards set forth above.

(2) Diseases of the jaws or associated tissues which are not easily remediable, would incapacitate the individual, and might prevent his satisfactory performance of duty.



(3) Orthodontic appliances required for the active movement of teeth.

The dental examiner will not determine dental acceptability for the candidate. However, he will inform the candidate of dental defects which must be remedied.

Department of the Army will notify the candidate with regard to acceptance or rejection, and as to required corrective actions, if any. Authority to proceed to the Military Academy will not be granted until a statement is received from the candidate's dentist indicating that all corrective measures, including the restoration of carious teeth as indicated by bite-wing X-rays, have been accomplished.

Candidates having correctible dental defects will be informed of same and instructed that they will be responsible for having the defects corrected prior to reporting to West Point in July. Candidates will also be informed that they will have in their possession at the time of reporting at West Point a statement from a practicing dental surgeon stating that all dental defects have been remedied, and listing all dental corrections made for the purpose of complying with USMA entrance requirements.

**EYES AND VISION:** Uncorrected visual acuity 20/100 correctible to 20/20 in each eye is acceptable. In all cases the actual vision of each eye will be reported. Careful inquiry will be made by the board of symptoms of asthenopia, and any symptoms elicited will be recorded. The refractive error will be determined by a cycloplegic examination, unless contraindicated medically, in all cases where the candidate's uncorrected vision is less than 20/20 in either eye and in other instances when indicated. The refractive error will be determined one hour after the instillation of 5 percent homatropine. Errors of refraction will be a cause for rejection, even though the visual acuity falls within acceptable limits. Total hyperopia of more than five (5.00) diopters in any meridian of either eye, total myopia of more than seventy-five hundredths (0.75) of a diopter in any meridian of either eye, astigmatic error of more than three (3.00) diopters in either eye, or anisometropia of more than three and one-half (3.50) diopters is cause for rejection. Muscle balance of the eyes will be determined by a white Maddox rod test at 20 feet in all cases and will be reported in prism diopters. Esophoria of more than 15 prism diopters, exophoria of more than 10 prism diopters, and hyperphoria of more than 2 prism diopters are causes for rejection. Strabismus of any degree is disqualifying.

Both eyes must be free from any disfiguring or incapacitating abnormality and from acute or chronic disease. A comment will be included on examination form to indicate whether candidate wears contact lenses.

Must have normal color perception. Results of tests will reflect the name of the test, the number of plates correctly read, and the number of plates in the test, i.e., 14/17.

**EARS AND HEARING:** Auditory acuity of all candidates will be determined by the audiometer. Loss of hearing, as determined by the audiometer, must not be greater than 15 decibels in any of the frequencies 500, 1,000, and 2,000, nor greater than 40 decibels in the frequency 4,000. Each candidate will be tested at the following frequencies: 500, 1,000, 2,000, 3,000, and 4,000. Existing perforation of the membrana tympani, regardless of etiology, is a cause for rejection. Both ears must be free from any disfiguring or incapacitating abnormality and from acute or chronic disease.

**NARES:** Septal deviation, hypertrophic rhinitis, or other conditions which result in 50 percent or more obstruction of either airway, or which interfere with drainage of a sinus on either side, are causes for rejection.

**SKIN:** Psoriasis or acne, moderately severe, and the deeply pitted scars resulting therefrom, vitiligo or other skin defect which is disfiguring or unsightly and bromidrosis, more than mild, are causes for rejection.

**HEART AND BLOOD VESSELS:** Where there is a history of rheumatic fever or questionable cardiac findings, a thorough investigation will be made, including detailed history, fluoroscopic examination of the heart, a 6-foot chest X-ray film permitting accurate determination of the cardiothoracic ratio, and an electrocardiogram, in addition to a careful general medical examination. Any evidence of organic heart disease will be considered cause for rejection. When a candidate is found to have a systolic blood pressure of 140 millimeters or more, or diastolic of 85 or more, readings will be taken each morning and afternoon over a period of three or more successive days, in order to determine whether the hypertension is persistent and, if possible, the cause thereof. Persistent blood pressure, systolic 140 millimeters or more, diastolic of more than 90 millimeters on repeated examination is a cause for rejection. All readings will be taken with the individual relaxed and in the sitting position after a period of normal physical activity. A period of recumbency will not be resorted to prior to taking readings. Pulses of the upper and lower extremities should

be palpated and the hands and feet should be observed for abnormalities of color and temperature, and for pallor on elevation. The absence of a pulse or the presence of pallor or temperature change will be cause for a more detailed vascular evaluation.

Varicosities of any extremity unless correctible by treatment or mild in degree are cause for rejection. Resultant pigmentation, dermatitis, ulceration, demonstrable edema, or pain substantiated by medical evidence, are causes for rejection.

**SEROLOGIC TESTS:** A serologic test for syphilis is performed on all candidates. An authentic history of syphilis of any type is cause for rejection without further laboratory procedure.

**GENITOURINARY SYSTEM:** Persistent albuminuria of any type or the persistence of casts in the urine will be cause for rejection, even though the etiology cannot be determined. Other causes for rejection: phimosis; epispadias or pronounced hypospadias; amputation or deformity of the penis; atrophy, deformity, or maldevelopment of both testicles; or undescended testicles of any degree.

**ORTHOPEDIC:** Suitable exercises will be employed to determine the strength of the arches. When pes planus is more than mild, a note will be made as to the presence or absence of bulging of the inner border due to rotation or eversion of the astragalus and any callosities. Pes planus, symptomatic, or with marked bulging of the inner border of the astragalus will be a cause for rejection when it would interfere with military service.

Pes cavus with clawing of the toes and calluses beneath the metatarsal heads is cause for rejection.

Where a history of injury to any joint is elicited, note will be made as to the presence or absence of lateral or other abnormal mobility, stiffness, traumatic arthritis, muscle atrophy, or weakness. X-ray and clinical evaluation will be made, when indicated.

Lateral deviation of the spine from the normal midline of more than 1 inch is cause for X-ray and clinical evaluation.

**ASTHMA:** Asthma or a history of asthma, except a history of childhood asthma with a trustworthy history of freedom from symptoms since the twelfth birthday, is a cause for rejection.

**ABDOMINAL WALL:** Hernia of any variety is a cause for rejection. The surgical repair of hernia requires a minimum of 60 days for qualification and must be without sequelae.

**MEDICAL QUALIFICATIONS:** The Army bases its decision to medically qualify a young man on medical facts revealed in a thorough medical examination. Candidates unable to satisfy the minimum

requirements are not suited for commissions in the Regular Army and consequently are not eligible for training at the Military Academy. Some of the causes for rejection listed above are correctible. The decision to have remediable defects corrected rests with the candidate. When these defects are corrected subsequent to an examination, the candidate will submit complete information relative to the corrective procedure to the medical facility conducting the medical qualification examination or to The Adjutant General, ATTN: AGPB-M, Department of the Army, Washington, D.C., 20315.



## II. Facilities Conducting Qualification Medical Examinations for the U.S. Military Academy

### ALABAMA

Daleville—Fort Rucker

### ALASKA

Anchorage—Fort Richardson

### ARIZONA

Cochise County—Fort Huachuca

### CALIFORNIA

Monterey—Fort Ord

San Diego—USNH

San Francisco—Letterman GH

San Pedro—Fort MacArthur

### COLORADO

Denver—Fitzsimons GH

### FLORIDA

Jacksonville—USNH, Naval Air Sta.

Key West—USNH

Panama City—Tyndall AFB

Pensacola—USNH

Tampa—MacDill AFB

### GEORGIA

Atlanta—Fort McPherson

Columbus—Fort Benning

Grovetown—Fort Gordon

Hinesville—Fort Stewart

### HAWAII

Tripler Army Hospital

### IDAHO

Elmore County—Mountain Home AFB

### ILLINOIS

Highland Park—Fort Sheridan

### INDIANA

Indianapolis—Fort Benjamin Harrison

### KANSAS

Junction City—Fort Riley

Leavenworth—Fort Leavenworth

KENTUCKY

Hardin County—Fort Knox

MARYLAND

Odenton—Fort George G. Meade

MASSACHUSETTS

Ayer—Fort Devens

Boston—Army Base

Chelsea—USNH

MICHIGAN

Mount Clemens—Selfridge AFB

MISSISSIPPI

Biloxi—Keesler AFB

MISSOURI

Waynesville—Fort Leonard Wood

MONTANA

Great Falls—Malmstrom AFB

NEBRASKA

Omaha—Offutt AFB

NEVADA

Las Vegas—Nellis AFB

NEW JERSEY

Oceanport—Fort Monmouth

Wrightstown—Fort Dix

NEW MEXICO

Roswell—Walker AFB

NEW YORK

Governors Island—Fort Jay

West Point—U.S. Military Academy

NORTH CAROLINA

Fayetteville—Fort Bragg

OHIO

Columbus—Lockbourne AFB

Dayton—Wright-Patterson AFB

OKLAHOMA

Lawton—Fort Sill

PENNSYLVANIA

Carlisle—Carlisle Barracks

Phoenixville—Valley Forge GH

PUERTO RICO

San Juan—Fort Brooke

RHODE ISLAND

Newport—USNH

SOUTH CAROLINA

Columbia—Fort Jackson

SOUTH DAKOTA

Rapid City—Ellsworth AFB

TENNESSEE

Clarksville—Fort Campbell

TEXAS

El Paso—William Beaumont GH

Killeen—Fort Hood

San Antonio—Fort Sam Houston

UTAH

Ogden—Hill AFB

VIRGINIA

Fairfax County—Fort Belvoir

Lee Hall—Fort Eustis

Old Point Comfort—Fort Monroe

Petersburg—Fort Lee

WASHINGTON

Tacoma—Fort Lewis

WASHINGTON, D.C.

Walter Reed GH—Physical Examining Center (Outpatient Clinic)

WYOMING

Cheyenne—Warren AFB

CANAL ZONE

Fort Clayton

GERMANY

Heidelberg, USAH

JAPAN

Camp Zama

GH—General Hospital, AH—Army Hospital, AFB—Air Force Base,  
USNH—U.S. Naval Hospital

### **III. Examples of Tests Used in the U.S. Military Academy Physical Aptitude Examination**

A combination of the following tests, which result in the candidate using all of his physical facilities, constitutes the Physical Aptitude Examination of the Military Academy.

- (1) Basketball throw for distance using a regulation basketball.
- (2) Basketball throw (modified). Regulation basketball is thrown overhand for distance from the kneeling position.
- (3) Broad jump for distance, standing.
- (4) Broad jump for distance, three in succession. Standing start with three successive broad jumps.
- (5) Burpee test for 20 seconds. Continuous movements from the standing position to the squat, to the leaning rest, to the squat, and back to the standing position.
- (6) Dipping on parallel bars. Raising and lowering oneself on parallel bars by means of the arms. The body is lowered until upper arm passes the horizontal.
- (7) Dodge run. A run through a maze placed on a gymnasium floor.
- (8) Hop, step, and jump. With a 10-foot run to a take-off line take a hop, a step, and a jump to gain as great a distance as possible.
- (9) Hurdle run. A run through a maze placed on a gymnasium floor.
- (10) Medicine ball put. A 6-pound medicine ball is put using the same movement as required for a shotput.
- (11) Pull-ups. Chinning oneself on a horizontal bar, grasping bar with back of hand toward face.
- (12) Push-ups. Standard push-ups starting from the leaning rest position.
- (13) Rope climb (7 seconds). Climb a regulation gymnasium rope as high as possible in 7 seconds, using hands and feet or hands alone, starting from a standing position.
- (14) Sit-ups (2 minutes). These are to be performed with a partner holding the feet.
- (15) Sit-ups (for speed). These are to be performed in 30 seconds while lying on a gymnasium mat with toe hooked under a bar.



- (16) Softball throw. For distance using a regulation softball. (12-inch circumference.)
- (17) Running, shuttle. This test is a shuttle run on a gymnasium floor between two turning blocks 25 yards apart.
  - 100 yards.
  - 150 yards.
  - 250 yards.
  - 300 yards.
- (18) Running 300 yards on indoor track. 11 laps to the mile.
- (19) Vault for height, standing. From a standing position vault over a horizontal bar by touching it with only the hands using either flank or front vault.
- (20) Vertical jump. The difference between the height an individual can reach and the height he can jump and reach.

#### IV. Installations Conducting Entrance Examinations for the U.S. Military Academy

##### ALASKA

Anchorage—Fort Richardson

##### ARIZONA

Cochise County—Fort Huachuca

##### CALIFORNIA

San Francisco—Letterman GH

San Pedro—Fort MacArthur

##### COLORADO

Denver—Fitzsimons GH

##### FLORIDA

Tampa—MacDill AFB

##### GEORGIA

Atlanta—Fort McPherson

Columbus—Fort Benning

##### HAWAII

Tripler Army Hospital

##### ILLINOIS

Highland Park—Fort Sheridan

##### INDIANA

Indianapolis—Fort Benjamin Harrison

##### KANSAS

Leavenworth—Fort Leavenworth

##### KENTUCKY

Hardin County—Fort Knox

##### MASSACHUSETTS

Ayer—Fort Devens

##### MICHIGAN

Mount Clemens—Selfridge AFB

##### MISSISSIPPI

Biloxi—Keesler AFB

##### MISSOURI

Waynesville—Fort Leonard Wood

##### NEW JERSEY

Wrightstown—Fort Dix

NEW YORK

Governors Island—Fort Jay

NORTH CAROLINA

Fayetteville—Fort Bragg

OHIO

Columbus—Lockbourne AFB

OKLAHOMA

Lawton—Fort Sill

PENNSYLVANIA

Carlisle—Carlisle Barracks

Phoenixville—Valley Forge GH

PUERTO RICO

San Juan—Fort Brooke

SOUTH CAROLINA

Columbia—Fort Jackson

TENNESSEE

Clarksville—Fort Campbell

TEXAS

El Paso—William Beaumont GH

San Antonio—Fort Sam Houston

UTAH

Ogden—Hill AFB

VIRGINIA

Fairfax County—Fort Belvoir

WASHINGTON

Tacoma—Fort Lewis

WASHINGTON, D.C.

Walter Reed GH—Physical Examining Section (Outpatient Clinic)

CANAL ZONE

Fort Clayton

GERMANY

Heidelberg, USAH

JAPAN

Camp Zama

GH—General Hospital, AH—Army Hospital, AFB—Air Force Base

## V. Directory of Staff and Faculty

CAPT. JULIAN L. ABELL, SIG C  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
B.S., University of Arizona

MAJ. CHARLES M. ADAMS, INF  
*Associate Professor and Assistant to the Dean*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

MAJ. FLOYD C. ADAMS, JR., ARTY  
*Tactical Officer, USCC*  
B.S., The Citadel

MR. JAMES F. ADAMS  
*Lacrosse Coach*  
B.A., Johns Hopkins University

CAPT. THOMAS G. ADCOCK, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology

CAPT. FREDERIC G. AGATHER, AIS  
*Instructor in Russian*  
B.S., U.S. Military Academy  
M.A., Columbia University

CAPT. JOHN R. AKER, ORD C  
*Instructor in Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. AMES S. ALBRO, CE  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
B.A., M.A. (Oxon.)

MAJ. CRAIG ALDERMAN, JR., ARMOR  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy

MAJ. ROBERT L. ALEXANDER, INF  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

MR. LEROY A. ALITZ  
*Assistant Director of Physical Education and Wrestling Coach*  
B.S., State College of Iowa  
M.A., University of Iowa

CAPT. EUGENE W. ALLEN  
*Assistant Bandmaster*  
Army Bandmasters' Preparatory Course  
Naval School of Music, Washington, D.C.

MAJ. RICHARD H. ALLEN, TC  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology

COL. RUSSELL K. ALSPACH, *Professor*  
*Head of Department of English*  
B.A., M.A., Ph. D., University of Pennsylvania

CAPT. JEROME H. ANDERSON, INF  
*Instructor in Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S.I.R., Purdue University

CAPT. FREDERICK M. ANKLAM, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S. in C.E., University of Illinois

CAPT. ROBERT F. ANTHIS, ARMOR  
*Instructor in Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. DONALD A. ANDREWS, ARTY  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.A., University of California

DR. LLOYD O. APPLETON  
*Associate Director of Physical Education*  
B.A., Cornell College  
M.A., Columbia University  
Ph. D., New York University

CAPT. ARTHUR A. ARDUNA, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

LT. COL. REAMER W. ARGO, JR., ARTY  
*Instructor in History of the Military Art*  
B.S., U.S. Military Academy

MAJ. ANDREW J. ARMSTRONG, CML C  
*Instructor in Mathematics*  
B.S., North Texas State College  
B.S., U.S. Naval PG School

MAJ. HARVEY L. ARNOLD, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology



MAJ. THOMAS A. AUSTIN III, INF  
*Instructor in Spanish*  
 B.S., U.S. Military Academy  
 M.A., Middlebury College

CAPT. ROBERT W. BADGER, ARTY  
*Instructor in Earth, Space and Graphic Sciences*  
 B.S., U.S. Military Academy  
 M.S., University of Southern California

CAPT. ROBERT E. BAKER, CE  
*Instructor in Mechanics*  
 B.S., U.S. Military Academy  
 M.S., Massachusetts Institute of Technology

CAPT. JOHN L. BALLANTYNE III, ARMOR  
*Assistant Professor of Engineering Fundamentals*  
 B.S., U.S. Military Academy  
 M.S., Georgia Institute of Technology

MAJ. THOMAS F. BAMFORD, CE  
*Assistant Professor of Mathematics*  
 B.S., U.S. Military Academy  
 M.S., University of Illinois  
 M.S., Rensselaer Polytechnic Institute

CAPT. KEITH A. BARLOW, INF  
*Instructor in English*  
 B.S., U.S. Military Academy  
 M.A., University of Pennsylvania

MAJ. JOHN F. BART, INF  
*Instructor in English*  
 B.S., U.S. Military Academy

CAPT. RICHARD C. BAUGHMAN, INF  
*Instructor in Military Psychology and Leadership*  
 B.S., U.S. Military Academy  
 M.A., Vanderbilt University

CAPT. CHARLES D. BEAUMONT, INF  
*Instructor in French*  
 B.S., U.S. Military Academy  
 Diplôme supérieur d'études françaises en langue moderne, Alliance Française, France

CAPT. RONALD A. BELTZ, CE  
*Instructor in Mathematics*  
 B.S., U.S. Military Academy  
 M.S., Princeton University

LT. COL. CALVERT P. BENEDICT, INF  
*Instructor in History of the Military Art*  
 B.S., U.S. Military Academy  
 M.A., University of Oklahoma

CAPT. JAMES P. BERGEN, ARMOR  
*Instructor in Military Psychology and Leadership*  
 B.S., U.S. Military Academy  
 M.S., Purdue University

BRIG. GEN. WILLIAM W. BESSELL, JR., USA  
*Dean of the Academic Board*  
 B.S., U.S. Military Academy  
 C.E., Rensselaer Polytechnic Institute  
 D. Eng., Rensselaer Polytechnic Institute  
 National War College

MAJ. THEODORE C. BIELICKI, CML C  
*Instructor in Mathematics*  
 B.S., U.S. Military Academy  
 M.S., U.S. Naval PG School

CAPT. ALLAN C. BIGGERSTAFF, SIG C  
*Assistant Professor of Engineering Fundamentals*  
 B.S., U.S. Military Academy  
 M.S., University of Arizona

COL. JOHN D. BILLINGSLEY, *Professor Head of Department of Ordnance*  
 B.S., U.S. Military Academy  
 B.S. in M.E., Massachusetts Institute of Technology  
 M.B.A., Harvard University  
 National War College

COL. GEORGE W. BIXBY, CE  
*Permanent Associate Professor of Mathematics*  
 B.S., U.S. Military Academy  
 M.S., University of California  
 M.S., Rensselaer Polytechnic Institute  
 Army War College

CAPT. CHARLES F. BLISS III, INF  
*Tactical Officer, USCC*  
 B.S., U.S. Military Academy

LT. GLEN A. BLUMHARDT, INF  
*Aide-de-Camp, Commandant*  
 B.S., U.S. Military Academy

CAPT. PETER D. BOORAS, INF  
*Instructor in Earth, Space and Graphic Sciences*  
 B.S., U.S. Military Academy  
 M.S., Georgia Institute of Technology

CAPT. DAVID W. BOURLAND, INF  
*Admissions Officer*  
 B.S., U.S. Military Academy

CAPT. THOMAS M. BOWES, ARTY  
*Instructor in French*  
 B.S., U.S. Military Academy  
 University of Paris, France  
 Diplôme supérieur d'études françaises en langue moderne, Alliance Française, France

CAPT. FREDERICK B. BOWLING, INF  
*Assistant Professor of Mechanics*  
 B.S., U.S. Military Academy  
 M.S., University of Arizona

- MAJ. EDMUND J. BOYLE, USAF  
*Assistant Professor of Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology
- CAPT. ZEB B. BRADFORD, INF  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University
- LT. COL. PAUL F. BRAIM, INF  
*Assistant Professor of History of the Military Art*  
B.A., Shepherd College  
M.A., University of Delaware
- MAJ. RICHARD C. BREAKIRON, INF  
*Assistant S-1, USCC*  
B.S., U.S. Military Academy
- CAPT. GENE L. BREEDING, ARMOR  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University
- COL. CHARLES R. BROSHOUS, *Professor Head of Department of Earth, Space and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of California
- CAPT. ANDRE G. BROUMAS, CE  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., Princeton University
- CAPT. FREDERIC J. BROWN III, ARMOR  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.A., Ph. D., University of Geneva
- MR. WALTER R. BROWNE  
*Golf Coach*
- MR. ROBERT M. BRUCE  
*Associate Director of Physical Education and Assistant Basketball Coach*  
B.A., College of Wooster  
M. Ed., Springfield College
- CAPT. CHAMPLIN F. BUCK III, ARMOR  
*Instructor in Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., Georgia Institute of Technology
- MAJ. JAMES H. BUCK, AIS  
*Instructor in Social Sciences*  
A.B., University of Washington  
A.M., Stanford University  
Ph. D., The American University
- MAJ. BLAIR BUCKLEY, JR., INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Cornell University
- LT. COL. HARRY A. BUCKLEY, INF  
*Associate Director of Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S.I.R., Purdue University
- CAPT. JOHN C. BURKE, ARTY  
*Instructor in Mathematics*  
B.S., U.S. Military Academy
- MAJ. ROBERT J. BURKE, ARTY  
*Assistant Professor of Mathematics*  
B.S., St. Peter's College
- LT. COL. DONOVAN F. BURTON, ORD C  
*Associate Professor of Ordnance*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University
- LT. COL. WILFRED C. BURTON, ARTY  
*Associate Professor of English*  
B.S., New York State College for Teachers (Albany)  
M.A., Ph. D., New York University
- CAPT. HENRY W. BUTLER, SIG C  
*Assistant Professor of Physics*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University
- MR. THOMAS B. CAHILL  
*Plebe Football and Plebe Baseball Coach*  
B.S., Niagara University
- CAPT. RICHARD G. CALDWELL, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University
- MAJ. JACK L. CAPPS, ARTY  
*Associate Professor of English*  
B.S., U.S. Military Academy  
M.A., Ph. D., University of Pennsylvania
- MAJ. ROBERT E. CARIGNAN, FC  
*Assistant Professor of Social Sciences*  
B.S., University of Maryland  
M.B.A., Harvard University
- LT. COL. MARK C. CARRIGAN, CE  
*Instructor in Mathematics*  
B.S., Louisiana State University  
M.S., California Institute of Technology
- MAJ. HARRY E. CARTLAND, ARMOR  
*Assistant Professor of German*  
B.G.E., University of Omaha  
M.A., Middlebury College
- COL. THOMAS C. CHAMBERLAIN, GS  
*Chief of Staff*  
B.S., U.S. Military Academy  
Army War College
- CAPT. BILLY J. CHANCE, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

LT. COL. W. W. CHANDLER, SIG C  
*Associate Professor of Electricity*  
B.S., Ohio State University  
M.S., University of Michigan

CAPT. ROBERT B. CHAPMAN, ARTY  
*Assistant Professor of Physical Geography*  
B.S., U.S. Military Academy  
M.S., University of Southern California

MAJ. ROBERT A. CHENEY, SIG C  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. JOHN S. CHESBRO, ARTY  
*Assistant Professor of Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., University of Michigan

CAPT. PAUL W. CHILD, JR., ARTY  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Boston College

CAPT. ROBERT E. CLARK, INF  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

LT. COL. ROY E. CLARK, USAF  
*Assistant Professor of World Geography*  
B.S., Georgetown University  
M.A., Columbia University

CWO JOHN P. COCHRANE, AGC  
*Assistant Bandmaster*  
B.A., Colorado College  
B.M., Vandercook College of Music  
M.M., University of Michigan

CAPT. ALLEN A. COCKRELL, JR., ORD C  
*Instructor in Mathematics*  
B.A., M.A., University of Texas

CAPT. MICHAEL J. COLLINS, USAF  
*Instructor in Social Sciences*  
B.A., M.A., Butler University  
Ph. D., Rutgers University

CAPT. OLIVER B. COMBS, ARMOR  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.A., University of Southern California

CAPT. TERENCE J. CONNELL, CE  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Purdue University

MR. JAMES H. CONWAY  
*Chief, Technical Services and Acquisitions*  
*Div., USMA Library*  
Ph. B., DePaul University  
B.S. in L.S., University of Illinois

CAPT. CHARLES H. COOPER, CE  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., North Carolina State College

CAPT. JOHN H. COOPER, ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

MAJ. WALTER C. COUSLAND, ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

MAJ. FRANCIS W. CRAIG, INF  
*Admissions Officer*  
B.S., U.S. Military Academy

MAJ. THEODORE H. M. CRAMPTON,  
ARMOR  
*Instructor in Mathematics*  
A.B., Hamilton College  
M.A., Indiana University  
Ph. D., Indiana University

CAPT. JOHN W. CRANCER, INF  
*Instructor in Portuguese*  
B.S., U.S. Military Academy

LT. COL. DALE J. CRITTENBERGER,  
ARMOR  
*Executive Officer/S-3, 1st Regiment*  
B.S., U.S. Military Academy

CAPT. JOHN S. CROSBY, ARTY  
*Instructor in Mathematics*  
B.S., North Carolina State A & E

MR. CARLETON CROWELL  
*Cross Country and Track & Field Coach*  
Ph. B., University of Wisconsin

MR. WILLIAM C. B. CULLEN  
*Associate Instructor in Physical Education*  
*for Tennis and Squash and Tennis and*  
*Squash Coach*  
B.A., Wake Forest College

CAPT. EDWARD J. CUTLER, ARTY  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

COL. ELLIOTT C. CUTLER, JR., *Professor*  
*Head of Department of Electricity*  
B.S., U.S. Military Academy  
M.S.E.E., Ph. D., Georgia Institute of  
Technology

MAJ. JOHN D. DAIGH, CE  
*Associate Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., Ph. D., University of Illinois

CAPT. DONALD J. DANILEK, JAGC  
*Instructor in Law*  
B.A., Princeton University  
LL.B., University of Virginia

MR. JOHN A. DAVIS, JR.  
*Organist and Choirmaster*  
B.S., Westminster Choir College  
M.A., Boston University

BRIG. GEN. MICHAEL S. DAVISON, USA  
*Commandant of Cadets*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

CAPT. FRANK L. DAY, ARMOR  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

LT. COL. ROBERT S. DAY, USA  
*Director of Admissions and Registrar*  
B.S., University of Illinois  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology

MAJ. A. M. ROBERT DEAN, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy

MAJ. EDGAR DENTON III, AGC  
*Acting Associate Professor of Social Sciences*  
B.S., M.A., Ph. D., Syracuse University

1ST LT. A. KENNETH DE PAUL, JAGC  
*Instructor in Law*  
A.B., Pennsylvania Military College  
LL.B., Georgetown University

COL. JOHN S. B. DICK, *Professor*  
*Deputy Head of Department of Mathematics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology  
M.S., Rensselaer Polytechnic Institute  
Armed Forces Staff College  
NATO Defense College

MR. PAUL F. DIETZEL  
*Head Football Coach*  
B.S., Miami University of Ohio

CAPT. EVERETT S. DIEZ, INF  
*Instructor in Earth, Space and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of Southern California

CAPT. PHILIP V. DiMAURO, SIG C  
*Instructor in Portuguese*  
B.S., U.S. Military Academy  
Instituto Brasil-Estados Unidos, Brazil

CAPT. RICHARD W. DINWIDDIE, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy

MAJ. JAMES G. DONAHUE, INF  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy

LT. COL. PATRICK J. DONOHOE, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology  
M.S., Rensselaer Polytechnic Institute

CAPT. CLAUDE B. DONOVAN, ORD C  
*Instructor in Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., University of Alabama

LT. COL. ROBERT S. DOUTHITT, INF  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy

MAJ. LEE T. DOYLE, ARMOR  
*Associate Professor of English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

CAPT. JAMES L. DOZIER, ARMOR  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Arizona

CAPT. SHAPLEIGH M. DRISKO, ARTY  
*Instructor in Military Psychology and Leadership*  
B.S., U.S. Military Academy

CAPT. JAMES E. DRUMMOND, ARTY  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of Arizona

MISS ELIZABETH DUNN  
*Cataloger*  
A.B., University of Kansas  
M.A. in L.S., University of Denver

LT. COL. DONALD T. DUNNE, ARMOR  
*Assistant Director of Instruction and Associate Professor, Department of Foreign Languages*  
B.A., University of Virginia  
M.A., Middlebury College

MAJ. JAY B. DURST, INF  
*Associate Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

CAPT. LOREN M. EBERHART, ARMOR  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy



CAPT. WATHA J. EDDINS, JR., ARMOR  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Michigan

MAJ. WAYNE H. ELLIOTT, ARTY  
*Instructor in History of the Military Art*  
B.S., U.S. Military Academy

CAPT. WILLIAM R. ELLIS, TC  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., Georgia Institute of Technology

COL. JOHN R. ELTING, ARMOR  
*Associate Professor of History of the Military Art*  
B.S., Stanford University  
M.A., Colorado State College of Education

CAPT. ROBERT M. ELTON, INF  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., University of Virginia

MAJ. EARL E. EMERSON, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., University of Illinois

MAJ. ARTHUR L. ERICKSON, INF  
*Assistant Professor of Astronomy*  
B.S., U.S. Military Academy  
M.S., Johns Hopkins University

CAPT. JAMES A. EUBANKS, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy

MAJ. ROBERT T. FALLON, INF  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., Canisius College  
M.A., Columbia University

MAJ. JOSEPH L. FANT III, ARTY  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

MISS IRENE FEITH  
*Reference Librarian for Periodicals and Government Documents*  
B.A., Ladycliff College

MAJ. CHARLES J. FIALA, CE  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy  
M.S., University of Illinois

MAJ. HAROLD C. FITZ, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., University of Alabama  
Ph. D., University of Virginia

CAPT. EUGENE L. FITZSIMMONS, ARTY  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

MAJ. LUIS J. FLANAGAN (Ret) (Inactive)  
*Assistant Operations Officer, USCC*  
B.S., U.S. Military Academy

CAPT. SAMUEL W. FOCER, JR., ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy

MAJ. JOHN V. FOLEY, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology  
M.S., Rensselaer Polytechnic Institute

MAJ. ASHBY M. FOOTE, JR., ARTY  
*Operations Officer, USCC*  
B.S., U.S. Military Academy

REV. JAMES D. FORD  
*Assistant Chaplain, USMA*  
B.A., Gustavus Adolphus College  
B.D., Augustana Theological Seminary

MAJ. ENOCH D. FRANKHOUSER, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., University of Arizona

COL. HARVEY R. FRASER, *Professor*  
*Deputy Head of Department of Mechanics*  
B.S., U.S. Military Academy  
M.S., California Institute of Technology  
Ph. D., University of Illinois  
Diploma, Graduate Training Center for Experimental Aerodynamics, Belgium

CAPT. WILLIAM R. FREDERICK, ARMOR  
*Instructor in Spanish*  
B.S., U.S. Military Academy  
University of Madrid, Spain  
M.A., Middlebury College

MAJ. KENNETH A. FRITH, MPC  
*Assistant Professor of the Portuguese Language*  
B.A., University of Denver  
Instituto Brasil-Estados Unidos, Brazil

MAJ. ELBERT E. FULLER, JR., INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. JOHN R. GALVIN, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

MR. FREDERICK C. H. GARCIA  
*Instructor in Portuguese*  
B.A. & Licenciado, Federal District  
University of Rio de Janeiro, Brazil  
Diploma (Teaching Certificate), University of Coimbra, Portugal

- LT. COL. GEORGE A. GARMAN, JR., ARTY  
*Chief, Admissions Division*  
A.B., Lawrence College  
B.S., U.S. Military Academy  
M.P.A., Harvard University
- CAPT. KERMIT H. GATES, JR., CE  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute
- 1ST LT. JOHN L. GEISER, JAGC  
*Instructor in Law*  
A.B., Gettysburg College  
LL.B., Dickinson School of Law
- CAPT. RICHARD W. GELL, CE  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University
- LT. COL. ALEXANDER GERARDO, SIG C  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., University of Illinois
- CAPT. BILL C. GIALLOURAKIS, ARTY  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University
- CAPT. JAMES A. GIBBS II, ARTY  
*Instructor in Chemistry*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute
- MAJ. EDGAR A. GILBERT III, CE  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Illinois
- CAPT. WENDELL H. GILBERT, ARTY  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy
- COL. CHARLES H. GINGLES, MC  
*Surgeon and Professor of Military Hygiene*  
A.B., B.S., M.D., University of Oklahoma
- CAPT. KENNETH E. GINTER, CE  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Illinois
- CAPT. ROBERT W. GIULIANO, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S.E., M.A., Princeton University
- MAJ. ROBERT E. GLASGOW, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy
- CAPT. GEORGE W. B. GLEN, ORD C  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Stevens Institute of Technology
- CAPT. ROBERT M. GOMEZ, ARMOR  
*Assistant Professor of Automotive Engineering*  
B.S., U.S. Military Academy  
M.S., Georgia Institute of Technology
- CAPT. ROBERT T. GOODWYN III, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Georgia Institute of Technology
- CAPT. DONALD H. GRANSBACK, INF  
*USNA, LNO*  
B.S., U.S. Military Academy
- CAPT. ROBERT L. GRETE, USAF  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.A., Baylor University
- LT. COL. THOMAS E. GRIESS, *Professor*  
*Deputy Head of Department of Military Art and Engineering*  
B.S., U.S. Military Academy  
M.S., University of Illinois
- MAJ. JOSEPH T. GRIFFIN, JR., INF  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy
- CAPT. RICHARD N. GROVES, JR., ORD C  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S.E., Purdue University
- MAJ. ALLEN F. GRUM, CE  
*Instructor in Civil Engineering*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology
- MAJ. CARROL W. GUTH, CE  
*Instructor in Civil Engineering*  
B.S., Drexel Institute of Technology  
M.S.E., A & M College of Texas
- CAPT. WILLIAM McK. HADLY, INF  
*Admissions Officer*  
B.S., U.S. Military Academy
- CAPT. JAMES B. HALL, CE  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology
- CAPT. HARRY W. HALTERMAN, JR., INF  
*Executive Officer, Department of Foreign Languages*  
B.S., U.S. Military Academy  
M.A., Middlebury College
- COL. ARCHELAUS L. HAMBLIN, JR., INF  
*Commanding Officer, 2d Regiment, USCC*  
B.S., U.S. Military Academy  
M.A., George Washington University  
Army War College

- MAJ. FRANK E. HAMILTON, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute
- LT. COL. ROBERT H. HAMMOND, CE  
*Associate Professor, Advanced Engineering Fundamentals*  
B.S., Fenn College  
M.S., Purdue University
- CAPT. STEPHEN R. HANMER, JR., ARTY  
*Instructor in Mechanics*  
B.S., Virginia Military Institute  
M.S., University of Southern California
- LT. COL. MARK J. HANNA, INF  
*Senior Infantry Instructor in Office of Military Instruction*  
B.S., U.S. Military Academy
- CAPT. HAROLD C. HANNAWAY, FC  
*Assistant Director, Academic Computer Center*  
A.B., Boston College
- CAPT. WILLIAM C. HAPONSKI, ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Cornell University
- CAPT. RICHARD L. HARGROVE, INF  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy
- MISS ANN K. HARLOW  
*Chief, Readers' Services Division, USMA Library*  
A.B., Duke University  
B.S. in L.S., University of North Carolina
- MAJ. THOMAS U. HARROLD, INF  
S-4, USCC  
B.S., U.S. Military Academy
- CAPT. HENRY J. HATCH, CE  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., Ohio State University
- COL. AUBURON P. HAUSER, ARTY  
*Director of Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S.E., University of Michigan  
Army War College
- COL. ELVIN R. HEIBERG, *Professor*  
*Head of Department of Mechanics*  
B.S., U.S. Military Academy  
C.E., Cornell University  
Diploma in Hydraulic Engineering, Delft Technological University, Netherlands  
Armed Forces Staff College
- CAPT. HEINO HEINSOO, ARTY  
*Instructor in German*  
B.A., Lawrence College
- MAJ. GEORGE D. HEISSER, JAGC  
*Assistant Professor of Law*  
B.S., U.S. Military Academy  
LL.B., University of Virginia
- CAPT. JAMES R. HENRY, INF  
*Instructor in Spanish*  
B.S., U.S. Military Academy  
M.A., Middlebury College
- CAPT. ROBERT B. HENRY, ARTY  
*Assistant Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University
- MAJ. MORRIS J. HERBERT, ARTY  
*Assistant Professor of Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., University of Southern California
- MAJ. VICENTE HERRERA, Mexican Army  
*Instructor in Spanish*  
B.S., El Heroico Colegio Militar de México
- MAJ. JOHN A. HETTINGER, JR., INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania
- MAJ. PAUL R. HILTY, JR., ARMOR  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., Columbia University
- CAPT. JOHN I. HINCKE, JR., INF  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy
- MAJ. WILFORD J. HOFF, JR., CML C  
*Permanent Associate Professor of Chemistry Advanced and Elective Courses*  
B.S., The Citadel  
M.A., Ph.D., Princeton University
- MAJ. HERBERT C. HOLLANDER, SIG C  
*Assistant Director, Academic Computer Center*  
B.S., U.S. Military Academy  
M.S.E.E., M.S.I.E., Stanford University
- CAPT. FREDERICK S. HOLMES, JR., SIG C  
*Assistant Professor of Physics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology
- MAJ. WINFIELD A. HOLT, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

CAPT. WILLIAM M. HOOKER, CML C  
*Instructor in Chemistry*  
B.S., U.S. Military Academy  
M.S., Ohio State University

CAPT. DAVID D. HORNER, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.A., Yale University

CAPT. RICHARD P. HOY, ARMOR  
*Assistant S-1, USCC*  
B.S., U.S. Military Academy

CAPT. RONALD E. HUDSON, CE  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Illinois

CAPT. JERRY H. HUFF, ARMOR  
*Instructor in Automotive Engineering*  
B.S., U.S. Military Academy  
M.S., University of Michigan

MAJ. ROBERT B. HUGHES, CE  
*Instructor in Civil Engineering*  
B.S., U.S. Military Academy  
M.E., Texas A&M

MAJ. RICHARD L. HUNT, CE  
*S-1, USCC*  
B.S., U.S. Military Academy  
M.S., University of Illinois

CAPT. ROBERT L. HUNT, INF  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy

CAPT. JOHN P. HUNTINGDON, ARTY  
*Instructor in Chemistry*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute

CAPT. JAROLD L. HUTCHISON, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy  
M.S., Indiana University

COL. ROBERT H. IVEY, JAGC  
*Associate Professor of Law*  
B.S., U.S. Military Academy  
LL.B., University of Virginia

COL. JOHN R. JANNARONE, *Professor*  
*Head of Department of Physics and*  
*Chemistry*  
B.S., U.S. Military Academy  
M.S., California Institute of Technology  
C.E., Columbia University  
Army War College

MAJ. JOHN R. JENNINGS, INF  
*Instructor in Military Psychology and*  
*Leadership*  
B.S., U.S. Military Academy  
M.A., Vanderbilt University

MAJ. GUY E. JESTER, JR., CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S. in C.E., University of Illinois

CAPT. WILLIAM M. JEWELL, JR., ARMOR  
*Assistant Professor of Engineering*  
*Fundamentals*  
B.S., U.S. Military Academy  
M.S., University of Southern California

CAPT. WILLIAM R. JOHANSEN, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., University of California

CAPT. HARRY W. JOHNSON, JR., ARMOR  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Princeton University

MAJ. MALCOLM D. JOHNSON, CE  
*Instructor in Civil Engineering*  
B.S., U.S. Military Academy  
M.S., Texas A&M

CAPT. WILLIAM H. JOHNSON, JR., MSC  
*Assistant Professor of Military Hygiene*  
B.A., Hofstra College

CAPT. ALEXANDER JOHNSTON III, CE  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Illinois

CAPT. CARLETON H. JONES, JR., CML C  
*Assistant Professor of Chemistry*  
B.A., Johns Hopkins University  
M.S., Ohio State University

MR. LARRY B. JONES  
*Football Coach*  
B.S., M. Ed., Louisiana State University

CAPT. MICHAEL S. JONES, USAF  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of  
Technology

COL. AMOS A. JORDAN, *Professor*  
*Deputy Head of Department of Social*  
*Sciences*  
B.S., U.S. Military Academy  
B.A., M.A. (Oxon.)  
Ph. D., Columbia University

CAPT. ROBERT H. JULIAN, CE  
*Instructor in Earth, Space, and Graphic*  
*Sciences*  
B.S., U.S. Military Academy  
M.S., Princeton University

CAPT. JAMES B. KAISER, ARMOR  
*Instructor in Mathematics*  
B.S., U.S. Military Academy



COL. WARREN H. KARSTEDT, TC  
*Associate Professor of Mathematics*  
B.A., Ripon College  
M.S., Purdue University  
Armed Forces Staff College  
Industrial College of the Armed Forces

CAPT. IRVIN G. KATENBRINK, JR., INF  
*Instructor in Military Psychology and Leadership*

B.S., U.S. Military Academy

MAJ. EARL L. KEESLING, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy

CAPT. EDWIN C. KEISER, CE  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., Princeton University

MAJ. PATRICK J. KENNY, SIG C  
*Assistant Professor of Physics*  
B.S., M.S., Fordham University  
Ph. D., University of Virginia  
Naval War College

MR. WILLIAM G. KERR  
*Assistant Librarian, USMA*  
B.A., Middlebury College  
B.L.S., McGill University

CAPT. IRVIN G. KINNIE, JR., SIG C  
*Assistant Professor of Engineering Fundamentals*

B.S., U.S. Military Academy  
M.S., University of Arizona

CAPT. JOHN B. KINUM, JAGC  
*Instructor in Law*  
A.B., Tufts University  
LL.B., Union University

MR. CHARLES L. KLAUSING  
*Football Coach*  
B.S., Slippery Rock State College  
M. Ed., University of Pittsburgh

LT. COL. DALLAS L. KNOLL, JR., CE  
*Associate Dean*  
B.S., U.S. Military Academy  
M.S. in C.E., University of Iowa

COL. FRANK J. KOBES, JR., Professor  
*Director of Physical Education*  
B.A., Doane College  
B.S., U.S. Military Academy  
M.A., New York University

CAPT. MAXIM I. KOVEL, CE  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., North Carolina State College

CAPT. GOTTFRIED H. G. KRAFFT, USAF  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., USAF Institute of Technology

LT. COL. ROBERT E. KREN, ARTY  
*Information Officer*  
B.S., U.S. Military Academy  
M.A., University of Missouri

MR. JOHN B. KRESS  
*Associate Director of Physical Education*  
B.S., M.A., Columbia University

MR. HERBERT J. KROETEN  
*Assistant Director of Physical Education*  
B.S., M. Ed., University of Minnesota

MAJ. MARVIN J. KRUPINSKY, CE  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology  
M.S., Rensselaer Polytechnic Institute

CAPT. ROBERT L. LAFRENZ, CE  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Ph. D., Iowa State University

MAJ. GEN. JAMES B. LAMPERT, USA  
*Superintendent*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of Technology

CAPT. ROBERT A. LANGWORTHY, TC  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Texas

CAPT. PETER W. LASH, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy

MAJ. GEORGE E. LEAR, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., Northwestern University

LT. COL. ROBERT E. LENZNER, ARTY  
*Assistant Professor of Spanish*  
B.S., U.S. Military Academy  
M.A., Middlebury College

MR. WILLIAM F. LEWIS  
*Assistant Director of Physical Education*  
B.S., Springfield College  
M.A., New York University

CAPT. WILLIAM R. LIGHT, CE  
*Instructor in Chemistry*  
B.S., Carnegie Institute of Technology  
M.S., Pennsylvania State University

MR. GEORGE W. LINCK  
*Assistant Director of Physical Education*  
B.S., Springfield College  
M.A., Columbia University

COL. GEORGE A. LINCOLN, Professor  
*Head of Department of Social Sciences*  
B.S., U.S. Military Academy  
B.A., M.A. (Oxon.)  
National War College

LT. COL. WILLIAM T. LINCOLN, SIG C  
*Associate Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of  
Technology

MAJ. CARL B. LIND, ARMOR  
*Assistant Professor of English*  
B.A., Norwich University  
M.A., Columbia University

CAPT. FRED S. LINDSEY, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy  
M.S., Indiana University

LT. COL. R. W. LITTLE, MSC  
*Instructor in Military Psychology and  
Leadership*  
A.B., Harvard University  
A.M., University of Chicago  
Ph. D., Michigan State University

MAJ. RICHARD A. LITTLESTONE, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., University of Virginia

CAPT. THEODORE J. LIVSAY, INF  
*Instructor in Spanish*  
B.S., U.S. Military Academy

MAJ. WILLIAM J. LIVSEY, INF  
*Instructor in Military Psychology and  
Leadership*  
B.S., North Georgia College  
M.A., Vanderbilt University

MR. TAYLOR LOCKE  
*Basketball Coach*  
B.A., Ohio Wesleyan University

CAPT. GEORGE U. LOFFERT, JR., ARMOR  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Arizona

COL. FREDERICK C. LOUGH, *Professor*  
*Head of Department of Law*  
B.S., U.S. Military Academy  
LL.B., Columbia University  
Industrial College of the Armed Forces

MAJ. WILLIS H. LOWREY, SIG C  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy

CAPT. DANIEL D. LUDWIG, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S. and Ph. D., Iowa State University

MAJ. WILLIAM F. LUEBBERT, SIG C  
*Permanent Associate Professor, Assistant  
to the Dean and Director, Computer  
Center*  
B.S., U.S. Military Academy  
M.S., E.E.A., Stanford University

MAJ. LONNIE H. LUMSDEN, ARMOR  
*Instructor in History of the Military Art*  
B.S., U.S. Military Academy

CAPT. JOSEPH A. LUPI, CE  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Purdue University

LT. COL. ROBERT E. LYNCH, AGC  
*Associate Professor of Social Sciences*  
B.A., University of Massachusetts  
M.B.A., University of North Carolina

MAJ. JOHN R. MACKERT, INF  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute

LT. COL. DONALD G. MACWILLIAMS,  
CML C  
*Associate Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., Ohio State University

CAPT. MICHAEL MAHLER, ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. DANDRIDGE M. MALONE, INF  
*Instructor in Military Psychology and  
Leadership*  
B.S., Vanderbilt University  
M.S., Purdue University

MR. THOMAS E. MALONEY  
*Assistant Director of Physical Education  
and Gymnastics Coach*

MR. NICHOLAS MALTZOFF  
*Assistant Professor, Russian*  
S.M. Ecole Bréguet, France

MAJ. JAMES W. MANN, ARTY  
*Instructor in Social Sciences*  
B.S., University of Illinois  
M.A., University of Illinois

MAJ. ANDREW MANSINNE, JR., ARTY  
*Assistant Professor of Social Sciences*  
B.S., University of San Francisco  
M.A., Harvard University

DR. JOSEPH E. MARRON  
*Chief, Research Division*  
B.A., M.A., St. Vincent College  
Ph. D., Fordham University

MAJ. DAVID H. MARTIN, INF  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.A., University of Rhode Island

CAPT. DON MARTIN, JR., ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. EDWIN W. MARTIN, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

LT. COL. JAMES C. MARTIN, INF  
*Assistant Professor of the Russian Language*  
B.S., University of Georgia  
Army Language School  
M.A., Columbia University

CAPT. JOHN F. MARTIN, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.E., Agriculture & Mechanical College of Texas

MAJ. JOHN W. MASTIN, CE  
*Permanent Associate Professor and Assistant to the Dean*  
B.S., U.S. Military Academy  
M.S., M.E., Harvard University

CAPT. FRANCIS W. MATTHEWS, INF  
*Aide-de-Camp*  
B.S., U.S. Military Academy

CAPT. LLOYD J. MATTHEWS, INF  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., Harvard University

CAPT. WILLIAM C. MAUS, INF  
*Instructor in Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. ELFORD M. MAYSON, CE  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

MAJ. GEORGE A. MCCLELLAN, JR., INF  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., Kent State University  
M.A., Columbia University

LT. WOODFORD D. MCCLELLAN, TC  
*Assistant Professor of Social Sciences*  
B.A., M.A., Stanford University  
Ph. D., University of California, Berkeley

CAPT. FREDERICK J. MCCONVILLE, ARTY  
*Assistant to the Dean*  
B.S., U.S. Military Academy

CAPT. J. GORDON MCCORMACK, ARTY  
*Assistant Professor of Physical Geography*  
B.S., U.S. Military Academy  
M.S., University of Southern California

MAJ. JAMES C. MCCRAW, ARTY  
*Instructor in Military Instruction*  
B.A., Texas Western College

MAJ. JOHN R. McDONALD, CE  
*Instructor in Civil Engineering*  
B.S., U.S. Military Academy  
M.S., Iowa State University

CAPT. ROBERT M. MCPHERSON, ARTY  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

MAJ. CARROLL S. MEEK, ARTY  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. RICHARD M. MEYER, ARMOR  
*Assistant Professor of Mathematics*  
B.S., Michigan State University  
M.S., University of Illinois

MAJ. LOUIS G. MICHAEL, INF  
*Assistant Professor of History of the Military Art*  
B.S., U.S. Military Academy

CAPT. JAMES M. MILLER, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S.E., Princeton University

CAPT. PAUL MILLER, JR., ARTY  
*Assistant Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

MAJ. RICHARD J. MILLER, INF  
*Assistant Professor of World Geography*  
B.S., U.S. Military Academy  
M.A., Syracuse University

CAPT. CECIL M. MINICH, ARTY  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of Michigan

MAJ. GEORGE M. MONTGOMERY, ORD C  
*Associate Professor of Ordnance*  
B.S., University of Arizona  
M.S., Purdue University

CAPT. JAMES E. MOORE, JR., INF  
*Instructor in French*  
B.S., U.S. Military Academy  
University of Paris, France  
Diplôme supérieur d'études françaises en langue moderne, Alliance Française, France

CAPT. EDWARD M. MOSES, ARMOR  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of Southern California

CAPT. THOMAS L. MULLAN, JR., INF  
*Tactical Officer, USCC*  
 B.S., U.S. Military Academy

CAPT. JACK T. MUNSEY, ARTY  
*Instructor in English*  
 B.S., U.S. Military Academy  
 M.A., Cornell University

CAPT. JAMES R. MURPHY, USAF  
*Instructor in Social Sciences*  
 B.S., U.S. Military Academy  
 B.A., M.A. (Oxon.)

COL. RAYMOND P. MURPHY, ARTY  
*Director of Athletics*  
 B.S., U.S. Military Academy  
 M.S., Springfield College  
 Army War College

CAPT. WILLIAM V. MURRY, ARTY  
*Instructor in Chemistry*  
 B.S., U.S. Military Academy  
 M.S., Rensselaer Polytechnic Institute

MAJ. THOMAS W. NELSON, CE  
*Associate Professor of Mechanics*  
 B.S., U.S. Military Academy  
 M.S., Iowa State University

CAPT. DONALD F. NEWNHAM, CE  
*Assistant Professor of Electricity*  
 B.S., U.S. Military Academy  
 M.S., Purdue University

COL. CHARLES P. NICHOLAS, *Professor*  
*Head of Department of Mathematics*  
 B.S., U.S. Military Academy  
 Armed Forces Staff College

LT. COL. THOMAS J. NICHOLS, JAGC  
*Assistant Professor of Law*  
 B.S., U.S. Military Academy  
 LL.B., University of Michigan

CAPT. DAVID F. NIDEVER, ARTY  
*Instructor in Mathematics*  
 B.S., U.S. Military Academy

CAPT. WALLACE W. NOLL, ARTY  
*Assistant Professor of Mechanics*  
 B.S., U.S. Military Academy  
 M.S.E., University of Illinois

LT. COL. CHARLES K. NULSEN, INF  
*Plans Officer, Office of Military Instruction*  
 B.S., U.S. Military Academy

LT. COL. ROGER H. NYE, ARMOR  
*Permanent Associate Professor of Social Sciences (on Sabbatical leave)*  
 B.S., U.S. Military Academy  
 M.P.A., Princeton University

CAPT. DICK S. OBERG, ORD C  
*Instructor in Ordnance Engineering*  
 B.S., U.S. Military Academy  
 M.S., Purdue University

MAJ. EMMETT J. O'BRIEN, AIS  
*Instructor in Earth, Space, and Graphic Sciences*  
 B.S., Creighton University  
 M.A., University of Oklahoma

CAPT. FRANCIS E. O'BRIEN, SIG C  
*Instructor, Academic Computer Center*  
 B.S., U.S. Military Academy  
 M.S.E.E., Northeastern University

MAJ. JOHN E. O'BRIEN, ARTY  
*Assistant Professor of the French Language*  
 B.S., U.S. Military Academy  
 University of Paris, France  
 Diplôme supérieur d'études françaises  
 langue moderne, Alliance Française,  
 France

MR. JOSEPH M. O'DONNELL  
*Chief, Archives and History Division,  
 USMA Library*  
 B.A., George Washington University

MAJ. THOMAS C. OLDHAM, JAGC  
*Instructor in Law*  
 LL.B., University of Miami

MAJ. CLARENCE A. OLSEN, AIS  
*Instructor in French*

CAPT. LEE D. OLVEY, ARMOR  
*Assistant Professor of Social Sciences*  
 B.S., U.S. Military Academy  
 B.A., M.A. (Oxon.)

MSGT. ALFRED O'NEIL  
*Rifle Coach*

MAJ. ROBERT ORLIKOFF, ORD C  
*Assistant Professor of the German Language*  
 B.S., U.S. Military Academy  
 Certificate, University of Heidelberg,  
 Germany

MAJ. GEORGE K. OSBORN III, ARTY  
*Assistant Professor of Social Sciences*  
 B.A., M.A., Ph. D., Stanford University

MAJ. WARREN S. O'SULLIVAN, CE  
*Assistant Professor of Physics*  
 B.S., U.S. Military Academy  
 M.S., University of Illinois

CAPT. WILBUR M. OTTO, JAGC  
*Instructor in Law*  
 B.A., Dickinson College  
 LL.B., University of Michigan



CAPT. JOHN L. PALMER, ORD C  
*Assistant Professor of Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., Purdue University

MR. JOSEPH M. PALONE  
*Assistant Director of Physical Education and Soccer Coach*  
B.S., State University of New York,  
College at Cortland

CAPT. CHARLES R. PARKER, ARMOR  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

MR. JOHN A. PARKER  
*Audio-Visual Librarian*  
B.S., Temple University  
M.S. (Library Science), Pratt Institute  
Library School

CAPT. PAUL F. PARKS, ARTY  
*Instructor in German*  
B.S., U.S. Military Academy

LT. LAWRENCE PARKUS, INF  
*Instructor in Social Sciences*  
B.A., Johns Hopkins University  
M.A., Ph. D., Cornell University

CAPT. JOHN F. PASSAFIUME, ARMOR  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. RICHARD M. PASTORE, CE  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. REX V. PERKINS, INF  
*Assistant Professor of World Geography*  
B.S., U.S. Military Academy  
M.A., Syracuse University

CAPT. JOSEPH P. PERLOW, ARTY  
*Instructor in Physical Education*  
B.S., U.S. Military Academy  
M.S., Indiana University

MAJ. THORWALD R. PETERSON, CE  
*Instructor in Civil Engineering*  
B.S., U.S. Military Academy  
M.S., University of Illinois

CAPT. FRED B. PHILLIPS, USAF  
*Assistant Professor of Engineering Fundamentals*  
B.S., U.S. Military Academy  
M.S., Princeton University

CAPT. GARY R. PHILLIPS, ARTY  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
Diploma, Institute of Political Science,  
University of Grenoble

MISS ANNA E. PIERCE  
*Cataloger*  
B.S., New York State Teachers' College  
(Geneseo)

CAPT. JIMMY L. PIGG, ARMOR  
*Instructor in History of the Military Art*  
B.S., U.S. Military Academy

MR. EDWARD J. PILLINGS  
*Head Athletic Trainer*  
B.S., B. Ed., Washington State University  
M.A., Columbia University

CAPT. CHESTER J. PIOLUNEK, INF  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. CHARLES E. POOLE, JR., ARMOR  
*Instructor in German*  
B.S., U.S. Military Academy  
M.A., Middlebury College

CAPT. JON E. PORTER, ARTY  
*Assistant Professor, German*  
B.S., U.S. Military Academy  
Certificate, University of Heidelberg,  
Germany

MAJ. JOHN J. PORTERA, ARTY  
*Assistant Professor of the Spanish Language*  
B.A., San Jose State College  
M.A., Middlebury College

CAPT. CHARLES M. RADLER, CE  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., Ph. D., University of Illinois

MAJ. DONALD A. RAMSAY, CE  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., U.S. Air Force Institute of  
Technology

MR. KENNETH W. RAPP  
*Assistant Archivist*

MAJ. JOHN W. RASMUSSEN, JR., INF  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. ALLEN D. RAYMOND III, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Princeton University

MAJ. WILLIAM F. REILLY, CE  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Massachusetts Institute of  
Technology

CAPT. DONALD R. REINHARD, ORD C  
*Instructor in Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., New Mexico State University

## STAFF AND FACULTY

LT. COL. ROBERT W. REISACHER, CE  
*Instructor in History of the Military Art*  
B.A., Carnegie Institute of Technology  
M.F.A., Princeton University  
Armed Forces Staff College

COL. WALTER J. RENFROE, JR., *Professor*  
*Head of Department of Foreign Languages*  
B.S., U.S. Military Academy  
M.A., Ph. D., Columbia University  
Armed Forces Staff College

CAPT. DONALD M. RHEA, ARTY  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

MAJ. HAL B. RHYNE, ARMOR  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. ALAN V. RICHARD, ARTY  
*Assistant Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., Cornell University

CAPT. GERALD A. RICHARDSON, ORD C  
*Instructor in Spanish*  
B.S., U.S. Military Academy

MAJ. DANIEL S. RICKARD, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

MR. JOHN P. RILEY  
*Assistant Director of Athletics and Hockey*  
*Coach*  
B.A., Dartmouth College

CAPT. RICHARD RINKER, ARTY  
*Instructor in French*  
B.S., U.S. Military Academy  
University of Paris, France  
Diplôme supérieur d'études françaises en  
langue moderne, Alliance Française,  
France

MAJ. WILLIAM H. RITTER, ARTY  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

MAJ. RONALD A. ROBERGE, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S. in C.E., Massachusetts Institute of  
Technology

MSGT. HERBERT ROBERTS, JR.  
*Pistol Coach*

CAPT. GEORGE R. ROBERTSON, CE  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Illinois

LT. COL. WILLIAM B. ROGERS, CE  
*Associate Professor of Engineering*  
*Fundamentals*  
B.S., University of Tennessee  
M.A.E., University of Florida

LT. JOHN M. ROLLS, JR., INF  
*Instructor in Social Sciences*  
B.A., LL.B., Stanford University

LT. COL. WILLIAM F. ROOS, CE  
*Associate Professor of Civil Engineering*  
B.A., University of Utah  
B.S., U.S. Military Academy  
M.S., University of Iowa  
Armed Forces Staff College

CAPT. BARNES W. ROSE, JR., CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S., University of California

MAJ. JAMES R. ROSS, AIS  
*Instructor in Russian*  
B.A., University of California

MAJ. WILBUR A. ROSS, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. JOHN E. RUDZKI, ORD C  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute

CAPT. DAVID H. RUMBROUGH, AGC  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. CHARLES R. RUSSELL, SIG C  
*Instructor in Military Psychology and*  
*Leadership*  
B.S., U.S. Military Academy  
M.A., University of Arizona  
M.B.A., University of Arizona

MR. J. THOMAS RUSSELL  
*Chief, Special Collections*  
A.B., Kenyon College  
M.A. (Library Science), University of  
Michigan

CAPT. JAMES H. RYAN, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

MR. JOHN E. RYAN, JR.  
*Swimming Coach and Assistant to the*  
*Director of Athletics*  
B.S., M.A., Ohio State University

CAPT. ALAN B. SALISBURY, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Stanford University

CAPT. AMERICO A. SARDO, USMC  
*Assistant Professor of Social Sciences*  
B.A., Wesleyan University  
M.P.A., Princeton University

MAJ. SAM C. SARKESIAN, INF  
*Instructor in Social Sciences*  
B.A., The Citadel  
M.A., Columbia University

LT. COL. EDWARD A. SAUNDERS,  
*Professor*  
*Deputy Head of Department of Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

LT. COL. WILLIAM H. SCHEMPF, TM  
*Bandmaster*  
B.M., University of Wisconsin  
M.M., Ph. D., Eastman School of  
Music, University of Rochester

CAPT. MADISON C. SCHEPPS, JR., INF  
*Instructor in Spanish*  
B.S., U.S. Military Academy  
M.A., Middlebury College

COL. CHARLES H. SCHILLING, *Professor*  
*Head of Department of Military Art and*  
*Engineering*  
B.S., U.S. Military Academy  
M.S. in C.E., University of California  
Ph. D., Rensselaer Polytechnic Institute

CAPT. ROBERT C. H. SCHMIDT, ARTY  
*Assistant Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

CAPT. ROBERT L. SCHNEIDER, ARTY  
*Instructor in Mathematics*  
B.A., University of Minnesota  
M.S., Rensselaer Polytechnic Institute

CAPT. FRANK J. SCHOVER, SIG C  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

MR. TAD SCHROEDER  
*Football Coach*  
B.A., LL.B., University of Cincinnati

LT. COL. WILLIAM J. SCHUDER, CE  
*Assistant Director, Officer of Military*  
*Instruction*  
B.S., U.S. Military Academy  
M.S., Princeton University

CAPT. H. NORMAN SCHWARZKOPF, INF  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Southern California

MAJ. JOHN W. SEIGLE, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

CAPT. JAMES H. SEWELL, JR., ARMOR  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

MAJ. ROBERT A. SHADE, CML C  
*Assistant Professor of Chemistry*  
B.S., U.S. Military Academy  
M.S., U.S. Naval Postgraduate School

MR. WILLIAM A. SHALOSKY  
*Football Coach*  
B.S., University of Cincinnati

CAPT. DONALD P. SHAW, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.P.A., Harvard University

MAJ. FRANCIS J. SHERIFF, SIG C  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy  
M.B.A., Harvard University

LT. DONALD R. SHERK, INF  
*Instructor in Social Sciences*  
B.A., Ph. D., State University of Iowa

CAPT. RICHARD D. SHIMUNEK, ARMOR  
*Assistant S-4, USCC*  
B.S., U.S. Military Academy

CAPT. JAMES C. SHIREY, CE  
*Instructor in Earth, Space, and Graphic*  
*Sciences*  
B.S., U.S. Military Academy  
M.S., University of Illinois

MAJ. JAMES S. SIBLEY, CE  
*Assistant Professor and Assistant to the*  
*Dean*  
B.S., U.S. Military Academy  
M.S., California Institute of Technology

CAPT. MICHAEL S. SIRKIS, ARTY  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. JOHN F. SLOAN, CE  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.S., The Ohio State University  
M.A., Columbia University

CAPT. DAVID L. SMITH, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Stanford University

MAJ. EDWARD L. SMITH, AIS  
*Assistant Professor, Spanish*  
B.A., University of Puerto Rico  
LL.B., University of Louisville

MAJ. SIMEON M. SMITH, JR., ARTY  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., Ph. D., University of Pennsylvania

LT. K. WAYNE SMITH, INF  
*Instructor in Social Sciences*  
B.A., Wake Forest College  
M.A., Ph. D., Princeton University

## STAFF AND FACULTY

185

MAJ. RODNEY H. SMITH, CE  
*Assistant Professor of Civil Engineering*  
B.S., U.S. Military Academy  
M.S. in C.E., Ph. D., University of  
Illinois

CWO ROMAN A. SMITH  
*Personnel Officer, USCC*

LT. COL. WESLEY C. SMITH, CE  
*Associate Professor of Environment*  
B.S., Pennsylvania Military College  
M.A., Columbia University

MAJ. WILLIAM P. SNYDER, INF  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
Ph. D., Princeton University

MR. ROBERT E. SORGE  
*Associate Director of Physical Education*  
B.S., Shippensburg Teachers College  
M.A., Columbia University

CAPT. LEWIS S. SORLEY III, ARMOR  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

CAPT. HARRY E. SOYSTER, ARTY  
*Instructor in Chemistry*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

REV. THEODORE C. SPEERS  
*Chaplain, USMA*  
B.A., Princeton University  
B.D., Union Theological Seminary Cuyler  
Preaching Fellow, Union Theological  
Seminary  
D.D., Princeton University  
D.D., Hamilton College

MAJ. THOMAS J. STACY, ARTY  
*Instructor in Russian*  
A.B., San Diego State College

CAPT. EDWARD G. STAUCH, ORD C  
*Instructor in Earth, Space, and Graphic  
Sciences*

B.A., U.S. Military Academy  
M.S., University of Delaware

CAPT. ALLAN C. STERLING, JR., ARTY  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., Columbia University

CAPT. CHARLES H. STEVENS III, SIG C  
*Assistant Professor of Physics*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

CWO MILES A. STEWART  
*Laboratory Officer*  
Department of Ordnance

MAJ. WILLIAM C. STINSON, JR., INF  
*Instructor in Military Instruction*  
B.S., U.S. Military Academy

CAPT. CHARLES S. STODTER, ARTY  
*S-I/S-4, 1st Regiment, USCC*  
B.S., U.S. Military Academy

CAPT. WILLIAM B. STRETT, ORD C  
*Assistant Professor of Astronomy*  
B.S., U.S. Military Academy  
M.S., University of Michigan  
Ph. D., University of Michigan

MAJ. HENRY E. STRICKLAND, ARTY  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., University of Southern California  
M.S., Rensselaer Polytechnic Institute

CAPT. JAMES K. STROZIER, ARTY  
*Instructor in Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Michigan  
Ph. D., University of Michigan

CAPT. RICHARD H. SUGG, ARTY  
*Assistant Professor of Ordnance Engineering*  
B.S., U.S. Military Academy  
M.S., University of Southern California

CAPT. ROLAND R. SULLIVAN, ARTY  
*Instructor in English*  
B.S., U.S. Military Academy

COL. EDWIN V. SUTHERLAND, Professor  
*Deputy Head of Department of English*  
B.S., U.S. Military Academy  
M.A., Columbia University  
Ph. D., University of Pennsylvania  
Army War College

CAPT. DON F. SVENDSEN, CE  
*Instructor in Earth, Space, and Graphic  
Sciences*  
B.S., U.S. Military Academy  
M.S., Ohio State University

CAPT. MURRAY G. SWINDLER, ORD C  
*Instructor in Earth, Space, and Graphic  
Sciences*  
B.S., U.S. Military Academy  
M.S., Stevens Institute of Technology

MAJ. DONALD R. SWYGERT, CE  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.E., Agricultural and Mechanical Col-  
lege of Texas

CAPT. STANLEY R. SYNDENHAM, ARMOR  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., University of Arizona



COL. ROBERT M. TARBOX, CE  
*Deputy Commandant of Cadets*  
B.S., U.S. Military Academy  
M.S., University of California  
Army War College

MR. GEORGE J. TERRY  
*Football Coach*  
B.A., The College of the Ozarks  
M.S., University of Arkansas

CAPT. NICHOLAS TERZOPOULOS, ARTY  
*Instructor in English*  
B.A., Duquesne University  
M.A., University of Pennsylvania

LT. COL. RAYMOND E. THAYER, ARTY  
*Associate Professor of Physics*  
B.S., U.S. Military Academy  
M.S., University of Virginia

LT. COL. WILLIAM C. THOMA, FC  
*Instructor in Russian*  
B.A., M.B.A., New York University

MAJ. WILLIAM N. THOMAS, JR., ARTY  
*Assistant Director, Military Leadership*  
B.S., U.S. Military Academy  
M.S., Purdue University

CAPT. BILL T. THOMPSON, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
M.A., Cornell University

MAJ. MAXWELL R. THURMAN, ARTY  
*Cadet Activities Officer, USCC*  
B.S., North Carolina State College of  
A&E

DR. FRITZ TILLER  
*Assistant Professor, German*  
University of Berlin, Germany  
M.A., Middlebury College  
Ph. D., Yale University

MR. ERIC G. TIPTON  
*Baseball and 150-lb. Football Coach*  
B.A., Duke University

MAJ. HORACE W. TOUSLEY, ORD C  
*Assistant Professor of Mathematics*  
A.B., Ripon College

CAPT. RICHARD F. TRABERT, ORD C  
*Assistant Professor of Engineering Materials*  
B.S., U.S. Military Academy  
M.S., Stevens Institute of Technology

LT. COL. GEORGE W. TRACY, INF  
*Associate Professor of English*  
B.S., U.S. Military Academy  
M.A., Cornell University

CAPT. EDWARD L. TROBAUGH, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy

MAJ. ARTHUR F. TROMPETER, USAF  
*Assistant Professor of History of the Military Art*  
B.S., U.S. Military Academy

MAJ. ROBERT C. TURNER, ARTY  
*S-1/S-4, 2d Regiment, USCC*  
B.S., U.S. Military Academy

CAPT. HEATH TWICHELL, INF  
*Instructor in Social Sciences*  
B.S., U.S. Military Academy  
M.A., American University

CAPT. ANDREW F. UNDERWOOD, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy  
M.S., Indiana University

MR. JAMES J. VALEK  
*Football Coach*  
B.S., M. Ed., University of Illinois

MAJ. ROBERT D. VANDERSLICE, MPC  
*Instructor in Spanish*  
B.A., University of Nebraska

CAPT. GERALD E. VANVALKENBURG, INF  
*Instructor in Physical Education*  
B.S., U.S. Military Academy  
M.S., Indiana University

CAPT. DALE A. VESSER, ARMOR  
*Assistant Professor of Social Sciences*  
B.S., U.S. Military Academy  
B.A., M.A. (Oxon.)

MAJ. HERMAN J. VETORT, ARMOR  
*Assistant Professor of Russian*  
B.S., U.S. Military Academy  
Army Language School

CAPT. JOSEPH F. VINCENT, ARTY  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

CAPT. NEWELL E. VINSON, ARMOR  
*Instructor in Earth, Space, and Graphic Sciences*  
B.S., U.S. Military Academy  
M.S., University of Southern California

MR. CLAUDE VIOLETT  
*Instructor in French*  
B.A., University of Paris (Sorbonne),  
France  
M.A., Middlebury College

LT. COL. ARTHUR P. WADE, ARTY  
*Associate Professor of History of the Military Art*  
B.S., U.S. Military Academy

MR. FRANK E. WALTER  
*Sports Information Director*  
B.S., University of Puget Sound

CAPT. FLETCHER K. WARE, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

LT. COL. THOMAS A. WARE, JR., INF  
*Deputy Director of Physical Education*  
B.S., U.S. Military Academy

CAPT. FRANCIS A. WASKOWICZ, ARTY  
*Instructor in Mathematics*  
B.S., U.S. Military Academy

CAPT. GEORGE D. WATERS, CE  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

COL. WILLIAM W. WATKIN, JR., *Professor*  
*Deputy Head of Earth, Space and Graphic*  
*Sciences*  
B.S., U.S. Military Academy  
M.S., California Institute of Technology  
Ph. D., Columbia University  
Army War College

LT. COL. ROBERT K. WEAVER, JAGC  
*Assistant Professor of Law*  
B.S., LL.B., University of South Dakota

CAPT. THOMAS G. WEAVER, USAF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

LT. COL. WILLIAM M. WEGNER, MSC  
*Executive Officer, U.S. Army Hospital*  
Hospital Administration, Baylor-Army

CAPT. WILLIAM L. WEIHL, ARMOR  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

MR. EGON A. WEISS  
*Librarian, USMA*  
B.A., Harvard University  
M.A., Boston University  
M.S. (Library Science), Simmons College

MISS MARION B. WELLAR  
*Cataloger*  
Library Certificate, Riverside Library  
School, University of California

MAJ. JAMES W. WENSYEL, INF  
*Instructor in English*  
B.S., U.S. Military Academy  
M. Litt., University of Pittsburgh

DR. ALFRED C. WERNER  
*Associate Director of Physical Education*  
B.S., Springfield College  
M.S., Pennsylvania State University  
D.P.E., Springfield College

CAPT. DONALD P. WHALEN, ARTY  
*Assistant Professor of Electricity*  
B.S., U.S. Military Academy  
M.S., Purdue University

MAJ. VORIN E. WHAN, INF  
*Assistant Professor of History of the*  
*Military Art*  
B.S., University of Alabama

CAPT. ROBERT L. WHEATON, INF  
*Instructor in French*  
B.S., U.S. Military Academy  
University of Paris, France  
Diplôme supérieur d'études françaises  
en langue moderne, Alliance Française,  
France

WO KENNETH G. WHITCOMB  
*Assistant Bandmaster*

MAJ. ARTHUR L. WHITLEY, CE  
*Instructor in Mathematics*  
B.S., U.S. Military Academy  
M.S.E., Princeton University  
M.A., George Washington University  
Naval War College, Command and Staff

MAJ. JACK G. WHITTED, ARTY  
*Tactical Officer, USCC*  
B.A., Wofford College

CAPT. GEORGE E. WIEN, SIG C  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

CAPT. MELVILLE B. WIER, SIG C  
*Assistant Professor in Social Sciences*  
B.A., Ohio State University  
M.B.A., Harvard University

CAPT. WILLIAM H. WILCOX, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy  
M.A., Columbia University

CAPT. EDMUND A. WILHELM, SIG C  
*Assistant Professor of Physics*  
B.S., U.S. Military Academy  
M.S., Pennsylvania State University

MAJ. GLENN C. WILHIDE, JR., INF  
*Assistant Professor of English*  
B.S., U.S. Military Academy  
M.A., Columbia University

LT. COL. SUMNER WILLARD, AGC  
*Assistant Director of Instruction and*  
*Associate Professor, Department of*  
*Foreign Languages*  
B.A., M.A., Ph. D., Harvard University

CAPT. FRANK W. WILLETT, INF  
*Instructor in English*  
B.S., U.S. Military Academy

CAPT. JAMES S. WILLIS, JR., SIG C  
*Instructor in Physics*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute

CAPT. JACK H. WILLIAMS, JAGC  
*Assistant Professor of Law*  
B.A., Pennsylvania State University  
LL.B., George Washington University  
LL.M., Georgetown University

LT. SAMUEL R. WILLIAMSON, JR., TC  
*Assistant Professor in Social Sciences*  
B.A., Tulane University  
University of Edinburgh (Fulbright)  
M.A., Harvard University

CAPT. ERNEST B. WILSON, INF  
*Instructor in Military Psychology and Leadership*  
B.S., U.S. Military Academy  
M.S., University of Maine

MAJ. HARRY S. WILSON, JR., CE  
*Assistant Professor of Mathematics*  
B.S., U.S. Military Academy  
M.S., Rensselaer Polytechnic Institute

CAPT. WILLIAM M. WIX, SIG C  
*Assistant Professor in Social Sciences*  
B.S., U.S. Military Academy

CAPT. CHARLES D. WOOD, CE  
*Assistant Professor of Mechanics*  
B.S., U.S. Military Academy  
M.S., Iowa State University

MR. JOHN I. WOODRUFF  
*Assistant Director of Admissions and Registrar*

MAJ. ROBERT G. YERKS, INF  
*Tactical Officer, USCC*  
B.S., U.S. Military Academy

CAPT. DAVID C. YOUNG II, INF  
*Admissions Officer*  
B.S., U.S. Military Academy

CAPT. JOHN H. YOUNG, JR., ARTY  
*Instructor in English*  
B.S., U.S. Military Academy  
M.A., University of Pennsylvania

MAJ. LEON S. ZIMMER, SIG C  
*Instructor in Electricity*  
B.S., U.S. Military Academy  
M.S., Northeastern University

CAPT. ALBIN T. ZUKOWSKI, CML C  
*Instructor in English*  
B.A., M.A., De Paul University

# INDEX

	Page
Academic Board, Members of .....	22
Academic Awards and Distinctions .....	98
Academic Calendar, 1964-1965 .....	v
Academic Program, 1964-1965 .....	20
Activities and Social Life .....	79
Administration .....	9
Admission to West Point, General .....	123
Admissions Process .....	142
Advanced Studies Program .....	17
Age Requirements .....	123
American Republics, Cadets From .....	135
Appointment to West Point .....	142
Aptitude for the Service .....	11
Association of Graduates .....	149
Athletic Board .....	83
Athletic Awards and Distinctions .....	102
Athletics, Intercollegiate .....	83
Awards and Distinctions:	
Academic .....	100
Athletic .....	102
General .....	99
Military .....	99
Unit Achievement .....	98
Board of Visitors .....	147
Buildings .....	112
Chemistry and Physics, Department of: Courses in .....	60
College Entrance Examination Board Tests .....	137
Competitive Candidates .....	139
Congressional Candidates .....	139
Multiple Nominations .....	139
Sample Examination Questions, Where To Obtain .....	138
Competitive Appointments .....	131
Computer Center .....	77
Congressional Nominations .....	131
Congressional Competitive Nominations .....	131
Debate Tournament .....	95
Degree Conferred by Military Academy .....	17
Deposit Upon Entrance .....	143
Distinguished Cadets .....	98
District of Columbia Nominations .....	131



	Page
Earth, Space, and Graphic Sciences, Department of: Courses in.....	27
Educational Activities.....	93
Educational Preparation for Admission.....	124
Elective Courses.....	18
Electricity, Department of: Courses in.....	29
Engagement for Service.....	145
English, Department of: Courses in.....	34
English, Entrance Preparation in.....	125
Entrance Requirements.....	123
Examinations, Entrance:	
Academic.....	137
Medical.....	140
Physical Aptitude.....	141
Extracurricular Activities.....	79
Filipino Cadets.....	135
Foreign Cadets.....	135
Foreign Languages, Department of: Courses in.....	36
Foreign Languages, Entrance Preparation in.....	128
Forum, West Point.....	96
Grounds.....	120
Height and Weight Requirements.....	157
History, Entrance Preparation in.....	129
History of West Point.....	1
Honor Code.....	14
Honors Courses.....	19
Honor Military and Naval Schools, Nominations from.....	134
Instruction, Departments of: Courses in:	
Earth, Space, and Graphic Sciences.....	27
Electricity.....	29
English.....	34
Foreign Languages.....	36
Law.....	39
Mathematics.....	41
Mechanics.....	46
Military Art and Engineering.....	50
Military Hygiene.....	56
Ordnance.....	57
Physics and Chemistry.....	60
Social Sciences.....	62
Tactics.....	67
Intercollegiate Athletics.....	83
June Entrance Examinations.....	141
Law, Department of: Courses in.....	39
Leadership Training (Military Psychology).....	70
Leaves of Absence.....	146
Lecture Program.....	87
Library.....	107

	Page
March Entrance Examinations.....	141
March Entrance Examination Stations.....	168
Marriage, Not Permitted for Cadets.....	124
Mathematics, Department of: Courses in.....	41
Mathematics, Entrance Preparation in.....	125
Mechanics, Department of: Courses in.....	46
Medal of Honor Appointments.....	135
Medical Examinations:	
General.....	140
Installations Conducting.....	163
Special Considerations.....	157
Methods of Instruction.....	19
Military Art and Engineering, Department of: Courses in.....	50
Military Hygiene, Department of: Courses in.....	56
Military Awards and Distinctions.....	99
Military Psychology and Leadership: Courses in.....	70
Mission of the United States Military Academy.....	iii
Monuments.....	118
Museum.....	110
Nominations to West Point, Sources of.....	130
Oath of Allegiance.....	145
Ordnance, Department of: Courses in.....	57
Organization of Cadet Corps.....	10
Panama Canal, Nominations From.....	131
Pay and Allowances of Cadets.....	146
Philosophy of Education.....	16
Physical Aptitude Examination.....	141
Physical Aptitude Tests, Examples.....	166
Physical Conditioning for Candidates.....	143
Physical Education, Courses in.....	72
Physics and Chemistry, Department of: Courses in.....	60
Presidential Nominations.....	133
Procedures in Applying.....	130
Promotion Upon Graduation.....	146
Psychology, Military, and Leadership: Courses in.....	70
Puerto Rico, Nominations From.....	131
Qualified Alternates and Competitors.....	136
Reapplication for Nomination.....	136
Regular Component Nominations.....	133
Religion.....	85
Requirements, General, for Admission.....	123
Reserve Component Nominations.....	133
Scholarships.....	105
Scholastic Preparation for Admission.....	124
Science, Entrance Preparation in.....	129
Social Life and Activities.....	79

	Page
Social Sciences, Department of: Courses in.....	62
Sons of Deceased Veterans Nominations.....	134
Sources of Nomination.....	130
Staff and Faculty.....	170
Standard Academic Program.....	24
Student Conference on U.S. Affairs.....	93
Superintendents, West Point, List of.....	153
Tactics, Department of: Courses in.....	67
Travel Expenses, New Cadets.....	143
Typical Cadet Schedule.....	21
United States Corps of Cadets.....	10
Validation.....	17
Vice Presidential, Nominations.....	131
Weight and Height Requirements.....	157
West Point Debate Council.....	96
West Point Honor Code.....	14
West Point Museum.....	110
West Point Societies.....	151











# UNITED STATES MILITARY ACADEMY WEST POINT, N.Y.

## LEGEND

FIELD HOUSE	1	COMMANDANT'S OFFICE	13
BOAT HOUSE	2	CADET ACTIVITIES BLDG	14
ORDNANCE LABORATORY	3	SOUTH BARRACKS	15
FIRST CLASS CLUB (THE COMPOUND)	4	GRANT HALL	16
GYMNASIUM	5	NEW SOUTH BARRACKS	17
COMMANDANT'S QUARTERS	6	HOSPITAL	18
SUPERINTENDENT'S QUARTERS	7	ADMINISTRATION BLDG	19
NORTH BARRACKS	8	BARTLETT HALL	20
NEW NORTH BARRACKS	9	LIBRARY	21
WASHINGTON HALL	10	POWER HOUSE	22
CENTRAL BARRACKS & EAST BARRACKS (11A)	11	THAYER HALL	23
CADET CHAPEL	12	WEST POINT ARMY MESS	24
		CULLUM MEMORIAL HALL	25

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